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ON
THE CONGENITAL MALFORMATIONS
OF THE
RECTUM AND ANUS.



A PRACTICAL TREATISE
ON THE
ÆTILOGY, PATHOLOGY, AND TREATMENT
OF THE
CONGENITAL MALFORMATIONS
OF THE
RECTUM AND ANUS.

B Y
WILLIAM BODENHAMER, M. D.
"

"Necessitas medicinam invenit, experientia perficit." HIPPOCRATES.
"By studying Nature in her Imperfections and Irregularities, we are more likely to arrive at some Knowledge of her Laws, than if we regard her only in her Healthy condition." RAMSBOTHAM.

Illustrated by XVI Plates and Exemplified by CCLXXXVII Cases.

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WILLIAM HUSTON BODENHAMER,

NOW A STUDENT

AT *L'École-De-Médecine* OF PARIS,

THIS WORK

IS

MOST RESPECTFULLY AND AFFECTIONATELY

INSCRIBED

BY HIS FATHER,

THE AUTHOR.

P R E F A C E.

WHATEVER may be said with regard to either the merits or the demerits of this work, all will admit that the subject of it is of the highest importance, and that such a production as is here aimed at, is decidedly a desideratum in surgical literature. The utility of such a treatise is undoubted, and will not be called in question.

No complete, systematic or practical work on the congenital malformations of the rectum and anus, has ever been published in this or any other country. The literature on this subject lies buried in undigested confusion in the various channels throughout the range of the science—hence it can only be found in brief and detached articles and memoirs as presented in the transactions of societies ; in some of the special treatises on the diseases of the rectum and anus ; in the systematic works on surgery ; in the dictionaries ; or in the various periodicals of the day. The voluminous and the expensive character of most of these works, containing articles on this subject ; their scarcity and the difficulty of obtaining them, as well as the largest number of them being clothed in a foreign language, render them in a great degree inaccessible to the largest majority of practitioners.

To remedy this serious evil and to fill this void, the author has in the present work endeavored to collect these scattered materials into one continuous whole, adding to them his own reflections and experience on the subject ; and thus presenting in a systematic and connected form, a complete and accurate exposition of the congeni

tal malformations of the rectum and anus, their aetiology, pathology, classification and treatment.

Notwithstanding several very able and highly valuable contributions on this subject have been made within the last half century, nothing like a general treatise has been attempted. Of the principal contributors to this literature in later years, the names of Benjamin Bell, Thomas Copeland, and A. Copeland Hutehison of England; M.M. Amussat and Roux de Brignoles of France; Von Ammon and Friedberg of Germany; and Dr. Bushe, Dr. Barton and Dr. Gay of the United States, may be mentioned as the most important. "*The Boston Society for Medical Improvement*" has within the last few years highly distinguished itself by investigating this subject quite thoroughly, and Dr. Gay, already named, one of its able members, has produced a valuable paper on it. It is, however, more especially to the genius and master pen of M. Amussat of France that we are indebted for having drawn from oblivion as it were, this long neglected and forgotten subject, and for restoring it to that rank to which it is entitled.

Although these eminent surgeons have by their able productions inaugurated a new surgical epoch with regard to the anatomy, the physiology and the treatment of these congenital vices of conformation, yet it is surprising the little advancement which is being made on the subject. A congenital imperforation of the anus and rectum is still regarded by many surgeons merely as an anatomical *lusus naturæ*, beyond the power of art to remedy, and is still to a great extent the *opprobrium medicum*.

The investigation of these abnormal conditions of the rectum and anus is invested with a deep interest, not only as an important pathological inquiry, but above all as conducive to the adoption of measures calculated to be highly beneficial to a class of little sufferers, the most unfortunate and deplorable. The subject is a very important one, and is presented not for the benefit merely of the curious, in anatomical pursuits, but on account of its practical relations, and for the ultimate and permanent good of the little sufferers themselves; consequently it presents itself to the humane surgeon as an object demanding his most deliberate and serious attention, for among the

many forms of death which surround the eradle and whieh are the ob-
jects of parental care and solicitude, those which depend upon a
malformation, or an imperfect state of the excretory passages, are
perhaps the most distressing in their nature and make the most painful
impressions upon the minds of the parents.

In the elueidation of this subjeet, the author disclaims all pretensions to an extensive praetical and personal knowledge of it ; indeed this seldom falls to the lot of any one practitioner, however extensive his praetice may be.

It may be alleged that in treating this subjeet, the author has been guilty of great repetition and prolixity, but as the subjeet is so important, and has been so little discussed, he thought it might prove beneficial to enter into it somewhat in detail.

Whether this work will prove to be valuable or not, it has been the result of much reflection and long labour, and the author claims for it entire originality in the general design and treatment of the subjeet. The extent of his researches will be understood when it is known that he has consulted and cited the large number of authorities presented in the Bibliography at the commencement of the Introduction. This extensive Bibliographieal Index forms of itself a complete history of these congenital vices, and will greatly facilitate the study of them.

In this work the practitioner will find reported nearly three hundred cases, collected from the numerous sourees, being by far the largest number ever presented in any one single production on the subjeet. The record of these cases will show their singular variety ; they have all been carefully classed according to their species, and most all of them have been reported in full, and as near as could be, in the precise language of their authors. Many of these reports have been translated from the French, the German, and the Latin, especially for this work. The author has made but few remarks in relation to any of them, preferring to present in full the instances themselves, as facts, from whieh each practitioner might form his own opinion, and draw his own conclusions. It will be seen that the observations of authors and the cases, have been generally collected from the original

sources, instead of, as is often the case, from the mere references made to them by others.

It is a singular fact, and not unworthy of observation, that in reading the French authors on these congenital deformities, one will be strongly impressed with the idea that beyond the boundaries of France nothing whatever is known on the subject. The same may be said with respect to the Germans. In their productions on these congenital vices, they scarcely ever, if at all, allude to the French or the English; and neither the French, the Germans, nor the English ever refer to any American authority in relation to them. Whether this should be attributed to ignorance of the general literature of the subject, or to national pride or prejudice, the author will not attempt to determine. In the following pages, however, he has brought together in one harmonious body, for the mutual benefit of the whole, authorities, both English, French, German and American.

This work will contain both the medical and the surgical treatment in full from the earliest times, with all the improvements, down to the present day. The last chapter will give a complete exposition of the highly interesting subject of *Abdominal Artificial Anus*, so far as it relates to new-born children.

The simple *Classification* which has been adopted, the careful arrangement of all the cases under their appropriate heads, the *Alphabetical Index* to these cases at the end of the work, and the numerous *Lithographic Illustrations*, will, it is hoped, be found highly convenient and useful.

In conclusion the author humbly submits this treatise to the profession with all its *imperfections*, hoping that it will supply a hiatus in the resources of the surgical art.

854 BROADWAY, NEW YORK, }
September, 1860. }

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C O R R I G E N D A .

P A G E

- 29. The ninth line from the top, for *Chirurgie* read *de Chirurgie*.
- 49. The top line, for *abdominal* read *abdominal*.
- 129. The fourteenth line from the bottom, for *oe Recini* read *Ol. Ricini*.
- 168. The twenty-first line from the bottom, for *triangular* read *triangular*.
- 175. The ninth line from the top, for *mlegrave* read *moderate*.
- 191. The eighteenth line from the top, for *Journal* read *Journal*.
- 202. The top line, for *cases which* read *cases in which*.
- 335. The eighth line from the bottom, for *dilate* read *dilute*.
Explanation of plate third. The second line from the top, for *Case XIII* read *Case XXVII*.

EXPLANATION OF THE PLATES.

PLATE II.

Some of the Instruments employed in Proctoplasty, Colotomy, &c.

EXPLANATION.

- Figure 1. Small Bi-valve Speculum Ani.
- Figure 2. Operating Scalpel of medium size.
- Figure 3. Small size Scalpel for delicate work.
- Figure 4. Probe-pointed curved Bistoury.
- Figure 5. Cooper's Hernial Bistoury.
- Figure 6. Curved Sharp-pointed Bistoury.
- Figure 7. Straight Sharp-pointed Bistoury.
- Figure 8. Flexible-Silver grooved Director.
- Figure 9. Bull-dog Forceps of Liston, for pulling down the end of the rectum.
- Figure 10. Tumor Forceps, for drawing down the blind end of the rectum.
- Figure 11. Round-bellied Scalpel, for making the first incision of the perinæum.
- Figure 12. Silver Anal Canula.

Fig. 1.

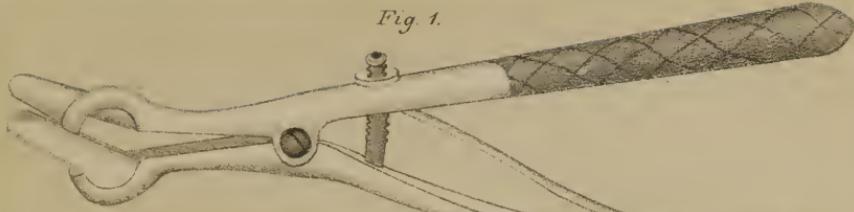


Fig. 6. Fig. 5

Fig. 7.

Fig. 8.



Fig. 6.

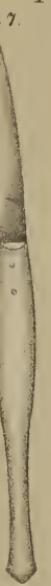


Fig. 5.



Fig. 4.



Fig. 2.



Fig. 3.



Fig. 11.



Fig. 12.



Fig. 10.

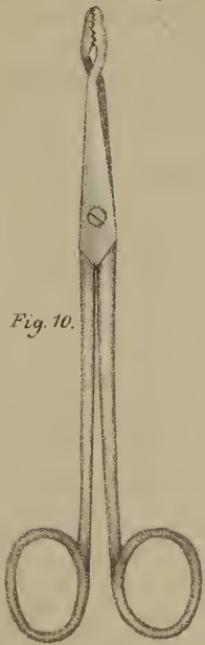


Fig. 9.

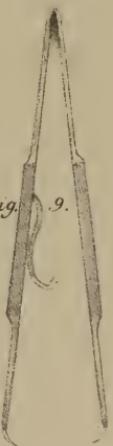


PLATE III.

Plate III. represents a case of membranous occlusion of the Anus, as seen by Von Ammon. [Vide Case XIII.]

EXPLANATION.

Figure 1, presents the external appearance of this case.

After Von Ammon.

a.—The penis in a constant state of erection.

b.—A considerable pit or depression near the natural situation of the anus.

Figure 2, presents the appearance of the intestines. *After Von Ammon.*

a, a, a..—The descending colon greatly distended with gas and meconium, just where it terminates in the rectum.

b..—The small intestines turned over on the right side.

Figure 3, presents the inferior portion of the rectum.

After Von Ammon.

a..—The rectum.

b..—The place at which the anus was closed.

c..—A sound in the orifice made by the operation.

Figure 4, presents the rectum laid open through its entire length.

After Von Ammon.

a..—The inner surface of the rectum.

b..—The folds of the rectum, or columns of Morgagni.

c..—The internal sphincter, forming a wreath-like mass, from which the membrane grew which had closed the anus.

d, d..—The cut surfaces of the rectal walls greatly thickened.

Plate III.

Fig. 1.

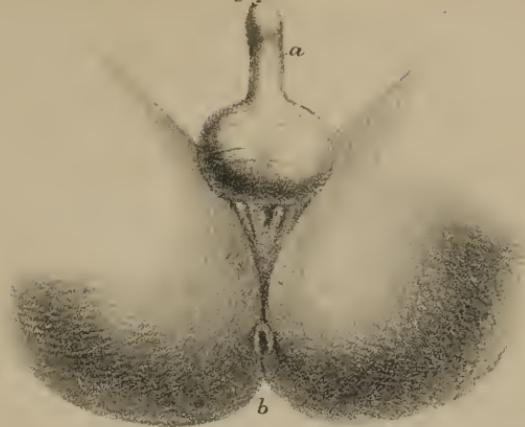


Fig. 3.



Fig. 2.



Fig. 4.



PLATE IV.

EXPLANATION.

Figure 1, represents the external appearance of an imperforate anus and rectum, in a new-born infant. [Third Species.]

a.—The prominent and continuous raphé.

Figure 2, represents the parts immediately concerned in a case of imperforation of the anus and rectum, as they were observed by Von Ammon in a five months' foetus. [Vide Case L.] *After Von Ammon.*

a.—The rectum.

b.—The cul-de-sac of the rectum.

c.—The cord-like rudiment of the rectum.

d.—The sigmoid flexure of the colon.

Figure 3, gives a representation of the parts concerned in Dr. W. P Hill's case of imperforate anus and rectum. [Vide Case LXII.]

a.—A portion of the perinæum.

b, b.—The ureters.

c.—The rectum terminating upon the neck of the bladder.

d.—The urethra.

e.—The bladder.

Fig. 1.

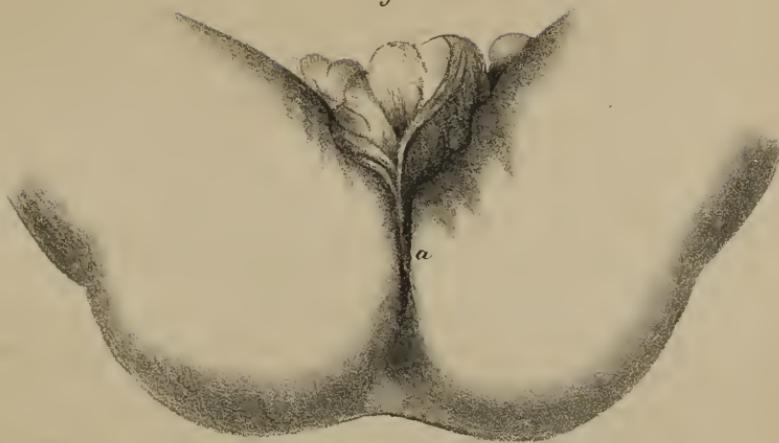


Fig. 2.

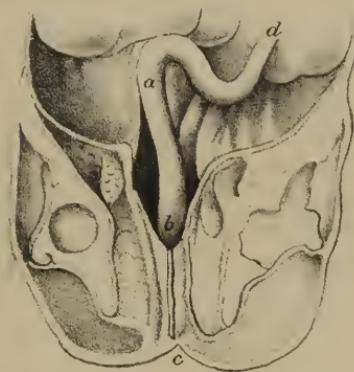


Fig. 3.

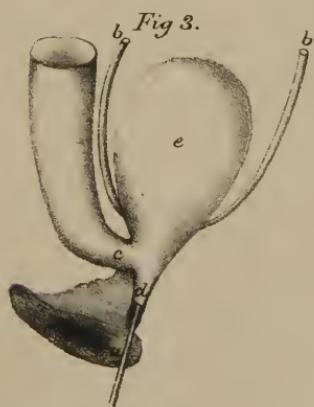


PLATE V.

Plate V. gives a full representation of the celebrated case of M. Amussat, and his peculiar operation. [Vide Case XLII.]

EXPLANATION.

Figure 1, is an imaginary representation of this case. M. Amussat, in order to render the details of his operation intelligible, gave a plan of the parts as he supposed them to exist before the operation. He took pains to make the analogy as complete as possible, by taking his sketch from a left-side view of the interior of the pelvis, in a female child who died a few days after birth. All the organs of the pelvis had been cut in two, part of the rectum was removed, to represent the deficient portion of the intestine, and the anus was made to communicate with the vagina. *After Bourgery.*

- a, b.*—The anus and vulva, which were properly formed, and communicated with the vagina only.
- c.*—The extremity of the rectum forming a cul-de-sac below the sacro-vertebral angle, and having no communication with either the anus or vagina.
- d.*—The bladder.
- e.*—The superior portion of the rectum.

Figure 2, represents Amussat's operation in this case.

After Bourgery.

- a, b.*—The fingers of an assistant.
- c.*—The sound introduced into the vagina.
- d.*—The loop of a ligature.
- e.*—The bistoury.

Figure 3, represents the conclusion of this operation. The horizontal wound is closed by sutures, and the margins of the longitudinal wound are united to the divided portions of mucous membrane. *After Bourgery.*

Plate V.

Fig. 1.

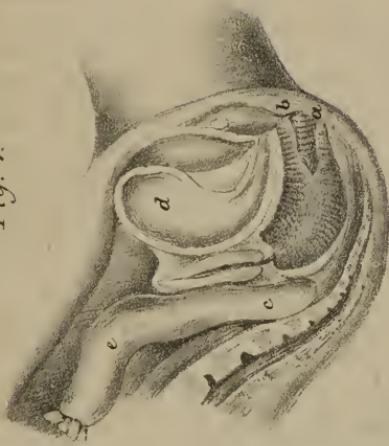


Fig. 2.

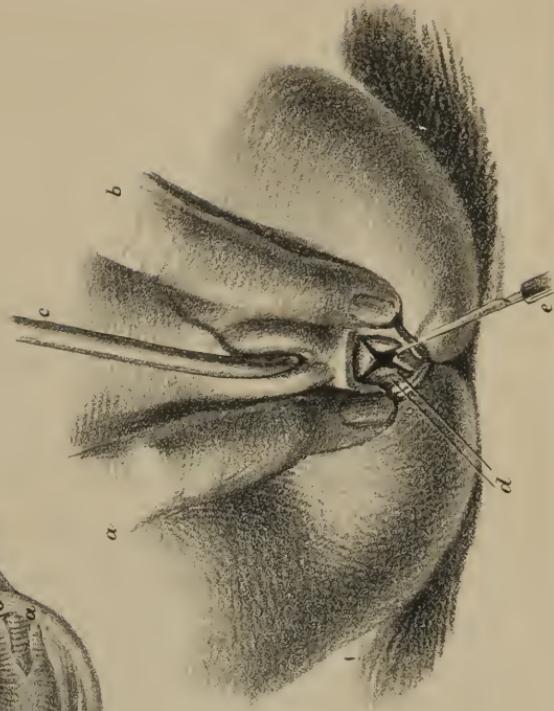


Fig. 3.

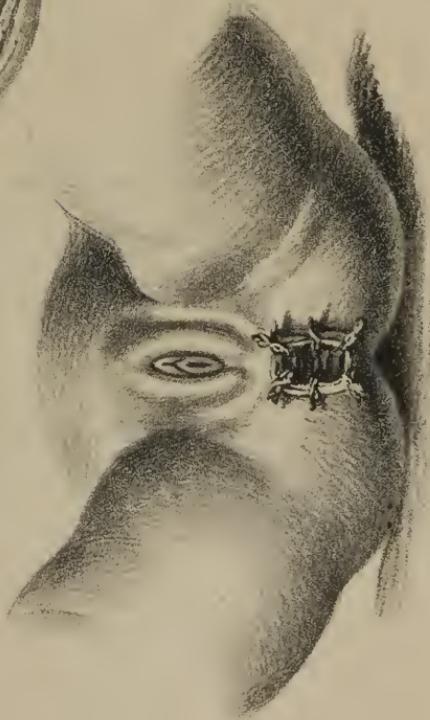


PLATE VI.

EXPLANATION.

Figure 1, represents a case of complete imperforation of the rectum, situated some distance above a normal anus. [Fourth Species.]

After Baillie.

- a.*—The rectum.
- b.*—The cul-de-sac and termination of the rectum.
- c.*—The normal anus.
- d.*—A bougie introduced into the short anal canal, as far up as to the blind end of the rectum.
- e.*—The anterior surface of the bladder.
- f.*—The posterior surface of the bladder.
- g.*—A part of one of the ureters.

Figure 2, represents the part concerned in a case of imperforation of the rectum above a normal anus, as observed by Mr. Ford. [Vide Case LXX.]

- a.*—The rectum laid open through its entire length.
- b.*—The ligamentous substance described by Mr. Ford.
- c.*—The normal anus.
- d.*—The place at which the rectum was occluded.

Plate VI.

Fig. 1.

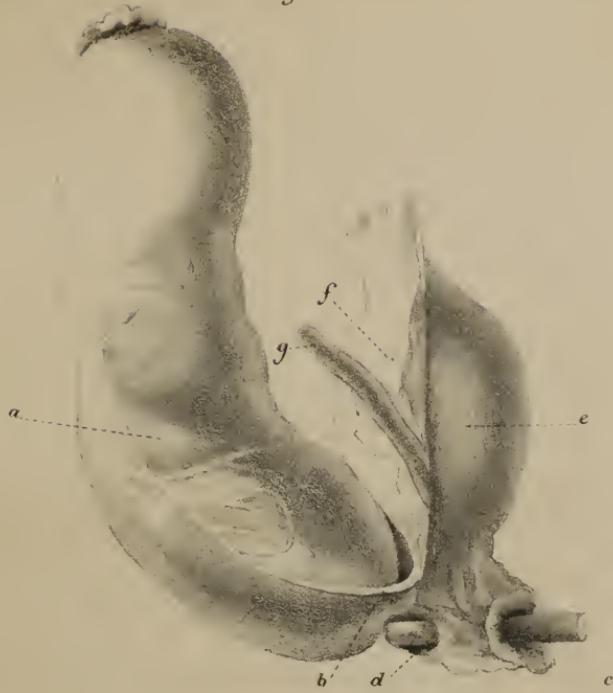


Fig. 2.



PLATE VII.

Plate VII. gives a representation of the rectum and part of the colon of a new-born infant, seen by Von Ammon, in whom existed a membranous closure of the rectum three-fourths of an inch above a normal anus. The child was in a dying state when Von Ammon was called, and no operation was performed. [Fourth Species.] (*Op. Cit. Tab. X. Figs. 9, 10, 11.*)

EXPLANATION.

Figure 1, presents a front view of the rectum, from the point of occlusion to its connection with the colon. *After Von Ammon.*

- a.—The rectum greatly distended.
- b.—The cul-de-sac of the rectum and point of occlusion.
- c.—The sigmoid flexure of the colon.
- d.—The bladder.

Figure 2, gives a lateral view of the rectum in the same case.

After Von Ammon.

- a.—The large sack-like rectum.
- b.—The point of occlusion of the rectum.
- c.—The circular fibres of the external sphincter.
- d.—The normal anus.
- e.—The bladder, small and contracted.
- f.—The urethra.
- g.—The sigmoid flexure of the colon.

Figure 3, represents the inferior portion of the rectum laid open from the verge of the anus to the occluding membrane. *After Von Ammon*

- a.—The blind sac of the rectum.
- b.—The membranous closure of the rectum.
- c, c.—The cut surfaces of the parietes of the rectum.

Plate VII

Fig. 1.

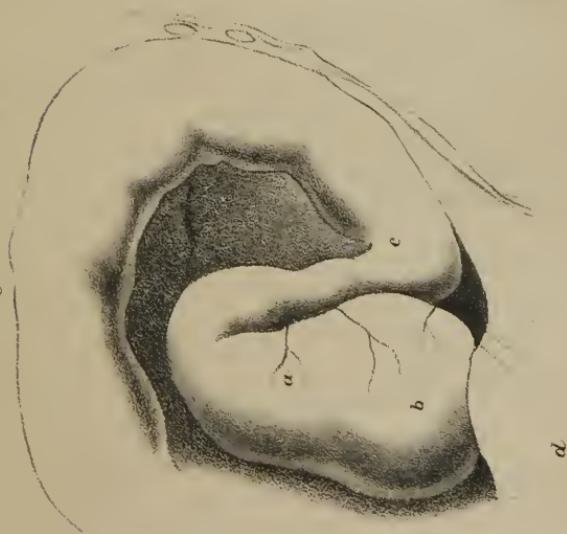


Fig. 2.

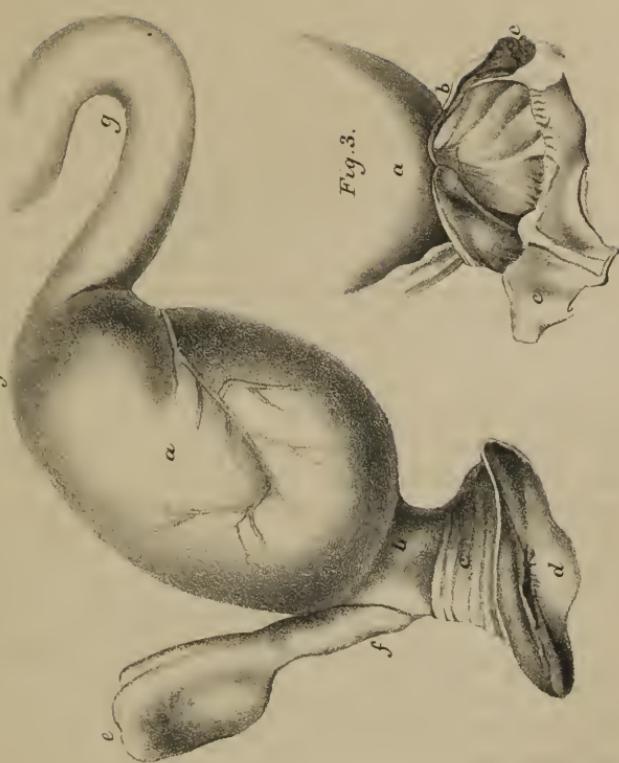


Fig. 3.

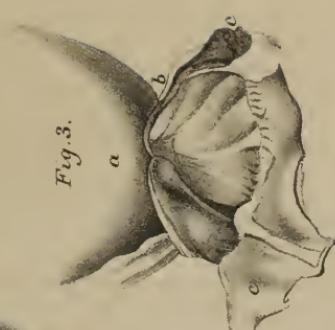


PLATE VIII.

Plate VIII. gives a full representation of the interesting case reported by M. Cruveilhier of a new-born infant in whom there existed an imperforation of the anus and a prolongation of the rectum. [Vide Case CV.]

EXPLANATION.

Figure 1, represents the perinæum and the genitals of this case.

After Cruveilhier.

- a.—The artificial opening made at the normal situation of the anus.
- b.—The rugose and prominent raphé which became linear as soon as meconium was voided.
- c.—The abnormal aperture, or anus.

Figure 2, gives a clear idea of the origin, the direction and the termination of the accidental canal.

After Cruveilhier.

- a.—The rectum.
- b.—The cul-de-sac of the rectum.
- c, c, c.—The accidental canal from its origin the rectum, to its termination at the glans penis.
- d.—The glans penis.

Figure 3, presents still a further view of the relation of the parts of the same case.

After Cruveilhier.

- a.—The bladder.
- b, b.—The rectum.
- c.—The cul-de-sac of the rectum.
- d.—The origin of the accidental canal.

Plate VIII.

Fig. 1.

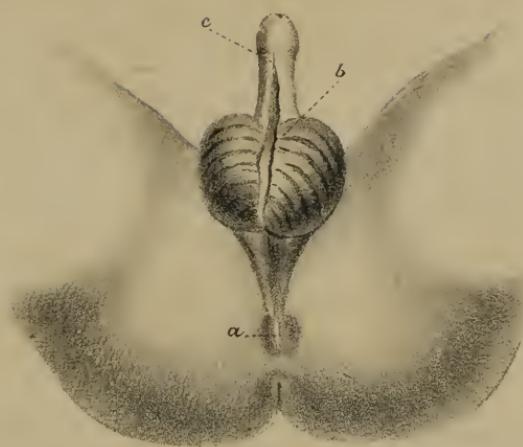


Fig. 2.



Fig. 3.



PLATE IX.

EXPLANATION.

Figure 1, gives a horizontal section of the pelvis, representing an imaginary case by Von Ammon, in which the anus is imperforate, and the rectum communicates with the vagina.

After Von Ammon.

- a, a.*—The rectum and sigmoid flexure of the colon.
- b.*—The bladder.
- c.*—The vagina.
- d.*—The recto-vaginal opening.
- e.*—A small elastic urethral bougie introduced by the vagina through the recto-vaginal opening into the rectum.
- f, f.*—The uterus with the ovaria.
- g.*—The symphysis pubis.
- h.*—The soft parts of the anal region.
- i.*—The blind end of the rectum.
- k.*—The superior extremity of the left leg.

Figure 2, represents the parts immediately concerned in the case of an infant, as seen by Wreisberg, in whom the anus was imperforate, and the rectum terminated in the bladder. [Vide Case CXXXIV.]

After Von Ammon.

- a.*—The rectum.
- b.*—The bladder laid open.
- c.*—The urethra.
- d.*—The penis.
- e, e.*—The umbilical arteries.
- f.*—The umbilical vein.
- g.*—The ligament leading from the bladder to the umbilicus.
- h.*—The urachus within the ligament.
- i.*—The recto-vesical opening.

Figure 3, represents the remarkable case of Casimir de Chónski in which the rectum was absent, and the colon terminated in the bladder by a prolongation. In this case existed *bilobation of the bladder*, of which it is a beautiful specimen, *umbilical hernia*, and a *preternatural anus*. [Vide Case CXXXV.]

After Von Ammon.

- a.*—The ileum severed.
- b.*—The annulus umbilicalis.
- c.*—The funiculus umbilicalis.
- d.*—Hernia umbilicalis.
- e.*—Vena umbilicalis.
- f.*—The colon descending with a considerable curve and prolongation, to communicate with the bladder.
- g, g.*—The bilobed bladder.
- h.*—The termination of the prolonged colon in the bladder, between the ureters.
- i, i.*—The ureters.
- j.*—A probe in the preternatural anus.
- k.*—The urethra severed.
- l, m.*—The two vasa deferentia.

Fig. 1.

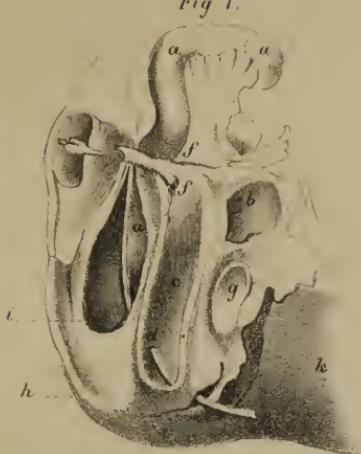


Fig. 2.

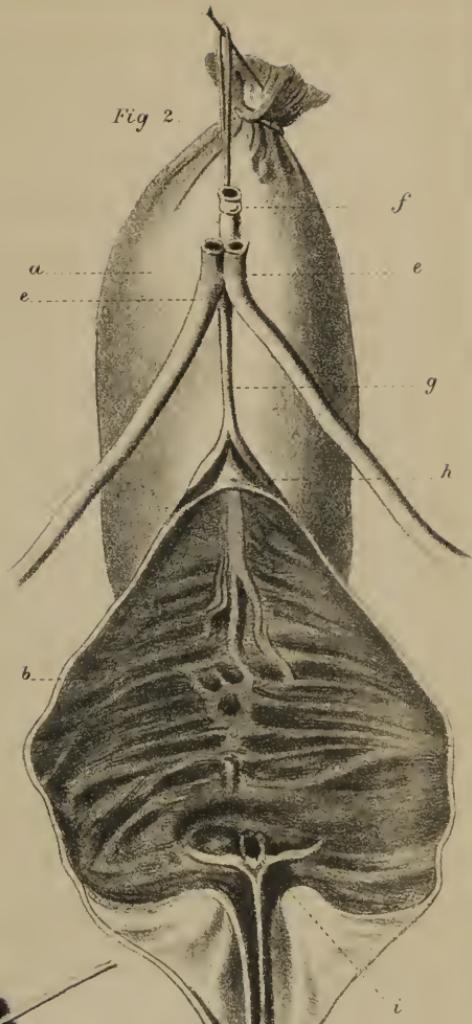


Fig. 3.

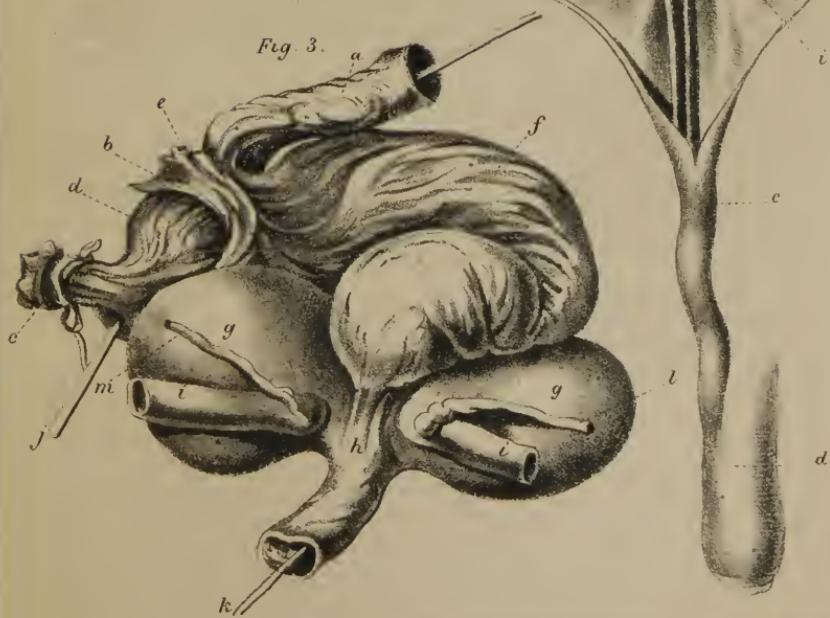


PLATE X.

EXPLANATION.

Figure 1, represents the very interesting case reported by Mr. Lucas, in which the rectum terminated in a cul-de-sac two inches above its natural outlet, and communicated with the bladder. [Vide Case CXXXVI.]

After Mieban.

- a.—The rectum, terminating nearly two inches from the anal aperture.
- b.—The bladder.
- c.—A probe passed through a small opening by which the pouch-like termination of the rectum communicated with the bladder.
- d.—A probe passed from the anal aperture upwards, showing its determination in the bladder; the vesical orifice being guarded by a valvular fold of mucous membrane.
- e, e, e.—A probe passed from the external orifice of the urethra along that tube into the bladder.
- f.—The distended portion of the urethra, the diameter of which is equal to a No. 11 bougie.
- g.—The distended scrotum communicating with the urethra for fully half its length, and lined with a coating of lymph, which presented extravasation of the urine, and the liquid faeces into the cellular tissue.
- h.—A small cul-de-sac corresponding to the urachus.

Figure 2, represents the case reported by the late Dr. Steele, of Saratoga Springs, in which the rectum terminated in the neck of the bladder. [Vide Case CXXXIX.]

- a.—The rectum and part of the colon.
- b.—The bladder.
- c.—The penis.

Figure 3, represents an imaginary section of the pelvis, to explain the imperforation of the anus, and the urethra as they were supposed to exist in M. Roux de Brignole's case.

- a, a.—The interior of the bladder.
- b, b.—Section of the prostate.
- c.—The vesicula seminales.
- d.—The vas deferens.
- e, e.—The interior of the rectum..
- f.—Supposed termination of the rectum in front of the neck of the bladder.
- g.—The penis.
- h.—The opening of the meatus.
- i.—The bulb of the urethra.
- k.—The root of the right corpus cavernosum.
- l.—Section of the pubis.
- m.—Space between the pubis and the bladder.
- n.—The urachus.
- o.—The muscles of the abdomen.
- p.—The skin.
- q, r.—The peritonæum lining the cavity of the abdomen.
- s, s.—The sacrum.
- t, t.—The incision in the perinæum.
- u.—The bistoury, its point in the rectum.

Plate X

Fig. 1.

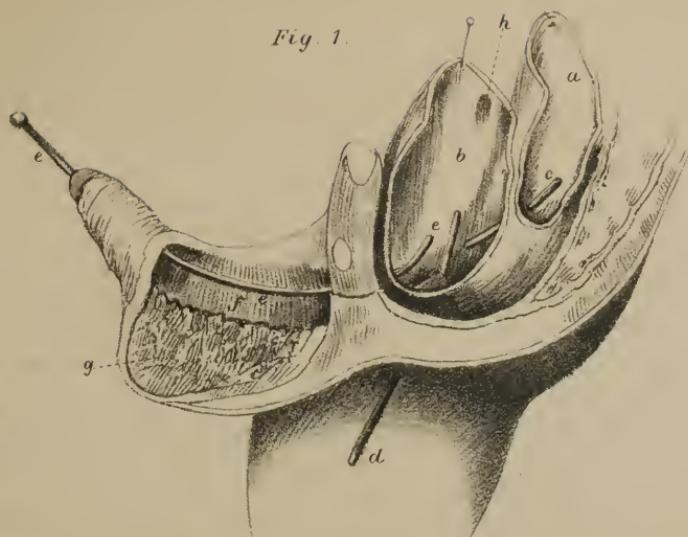


Fig. 2.

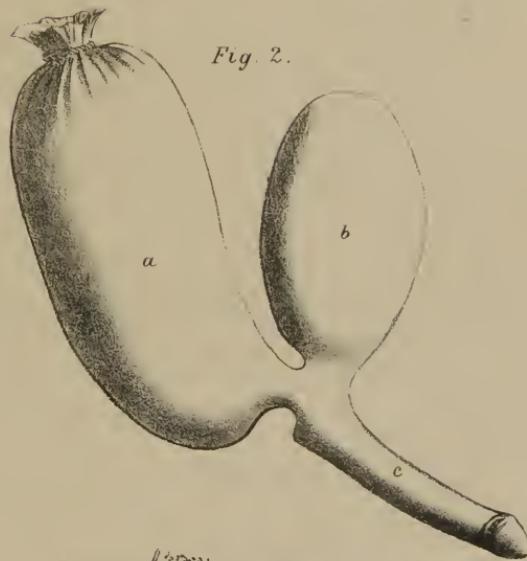


Fig. 3.

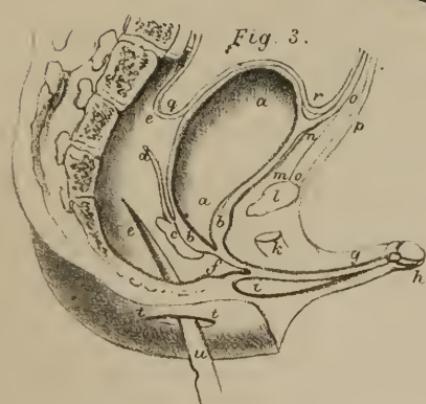


PLATE XI.

Plate XI. gives the representation of a remarkable fœtus observed by M. Cruveilhier, in which the anus was imperforate, and the rectum terminated in the bladder. [Vide Case CXL.]

EXPLANATION.

Figure 1, represents the ano-perinæal region of this case. It will be observed that the perinæum is enormous in its antero-posterior diameter.

After Cruveilhier.

Figure 2, represents a section of the pelvic cavity containing the soft parts.

After Cruveilhier.

a.—The bladder.

b.—The rectum which opens into the bladder, and with the base of which is perfectly confounded.

c, c.—The ureters.

d.—The prostatic portion of the urethra.

Figure 3, represents the rectum of this same case, opening into the posterior part of the bas-fond of the bladder by a large infundibuliform aperture.

After Cruveilhier.

a.—The rectum opening behind the bladder.

b.—The prostatic portion of the urethra.

c.—The infundibuliform aperture of the rectum communicating with the bladder.

d.—The bladder laid open, showing its interior.

Plate XI

Fig. 1.



Fig. 2.

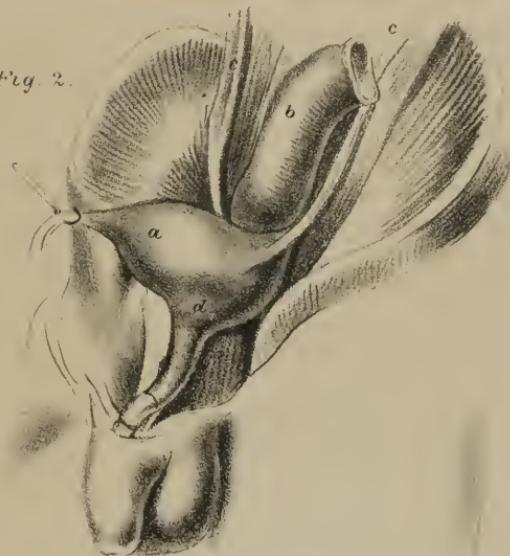


Fig. 3.

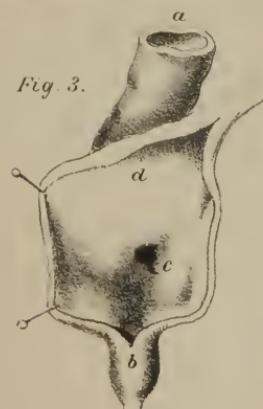


PLATE XII.

Plate XII. gives the representation of the case of a male child, presenting an imperforation of the anus with the rectum terminating in the bladder. It was seen by Von Ammon, and operated on without success.

EXPLANATION.

Figure 1, gives the external appearance of this case.

After Von Ammon.

- a, a.—The thighs slightly elevated.
- b.—A depression or pit in the exact situation of the absent anus.
- c.—The scrotum.
- d.—Another depression corresponding with the termination of the rectum within.

Figure 2, represents a side view of the internal parts directly concerned in this case.

After Von Ammon

- a.—The bladder.
- b.—The inferior extremity of the colon.
- c.—The rectum adhering to and terminating in the posterior part of the bladder between the insertion of the ureters.
- d, d.—The ureters.
- e, f.—The remaining portion of the integument and cellular tissue of the perinæum not cut away.
- g.—The place where the depression was, and into which the bistoury was plunged.

Figure 3, presents another view of the relation existing between the several internal parts of this case.

After Von Ammon.

- a.—The bladder, presenting its posterior aspect.
- b, b.—The ureters, the right one presenting a remarkable turn in it.
- c, c.—The kidneys.
- d.—The portion of the perinæum not removed, in which the depression was at the normal situation of the anus.
- e.—The rectum laid open and its cavity exposed, so that the orifice communicating with the bladder is distinctly seen.
- f.—The recto-vesical orifice between the ureters.

Fig. 1.



Fig. 2.



Fig. 3.

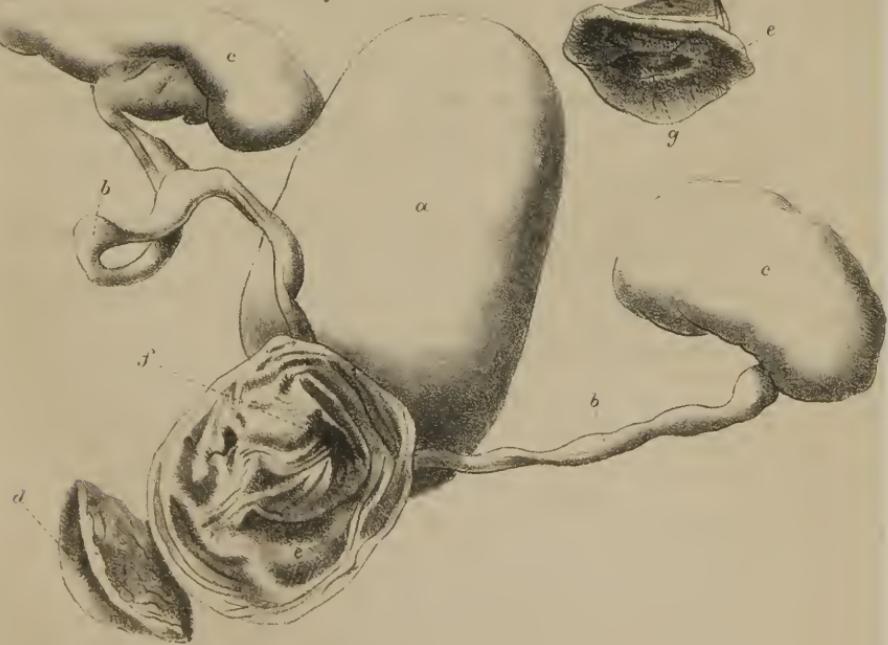


PLATE XIII.

EXPLANATION.

Figure 1, represents the case reported by Fleischmann, in which the anus and the rectum were entirely wanting, and the colon terminated in a blind sac. The abdomen is opened and its parietes turned over, thus affording a correct view of the situation of the intestines, especially showing the character of the descending colon. [Vide Case CCLIV.]

After Von Ammon.

- a.*—The liver above the commencement of the ascending colon.
- b.*—The ascending colon which here takes place of the cæcum, and is divided into two branches, from one of which springs the appendicula vermicularis.
- c.*—The descending colon, hanging loosely in the abdominal cavity.
- d.*—The blind end of the colon.
- e, e, e, e.*—The parietes of the abdomen.

Figure 2, represents the anatomical condition of the colon in a case of imperforation of the anus and rectum, as observed by Von Ammon. The descending colon presents several sac-like dilatations before passing down behind the bladder to terminate in a cul-de-sac in the rectum.

After Von Ammon.

- a.*—The descending colon.
- b, b.*—The sac-like dilatations of the colon.
- c.*—The bladder, behind which the colon passes.
- d, e.*—The small intestines in a normal condition.

Plate XIII

Fig. 1.

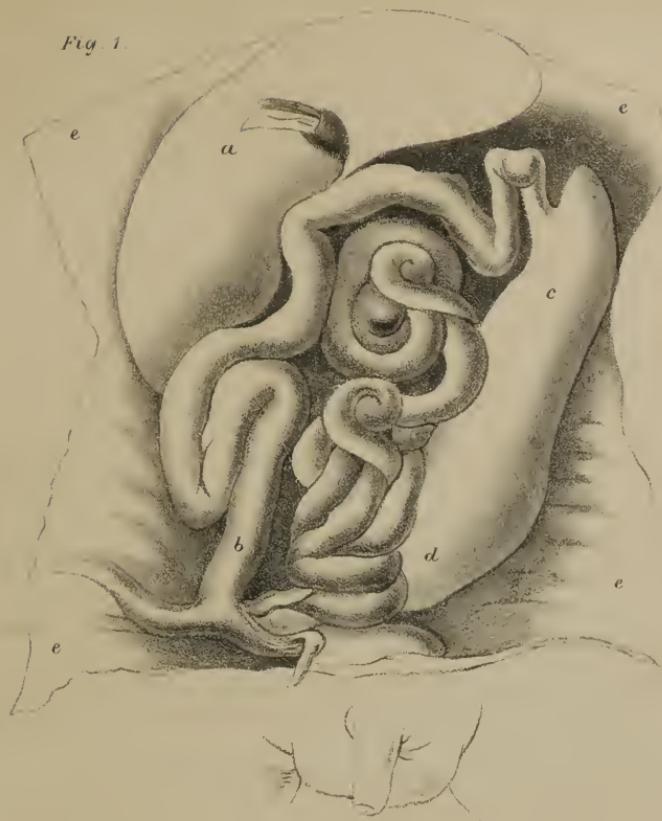


Fig. 2.

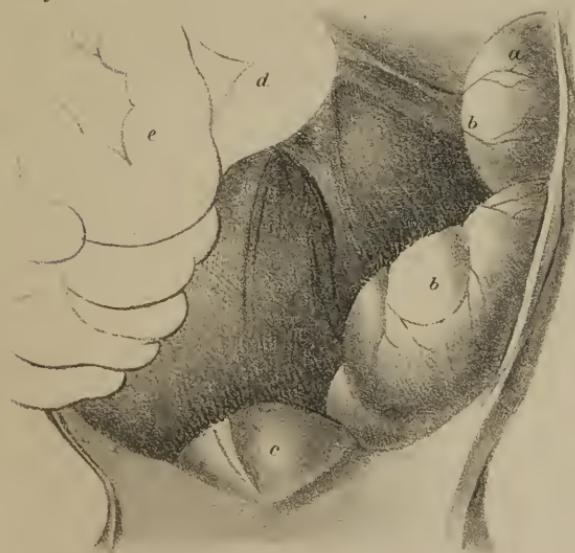


PLATE XIV.

Plate XIV. gives a representation of the case of a male child presenting an imperforation of the anus and rectum, unsuccessfully operated on by Von Ammon. The autopsy in this interesting case clearly revealed the cause of the failure of the operation. The rectum for about two-thirds of its entire length was greatly dilated, presenting the form of a pouch; but gradually tapered off, and terminated blindly in a small point within a few lines of the posterior wall of the scrotum.

Notwithstanding the incision was made in the proper place, and deep enough, yet it entirely failed to reach the rectum, because this organ was further removed from the sacrum towards the front than the natural, and thus occupying an abnormal position. [Vide page 102.] Had this fact been previously known to Von Ammon, and his incision directed much more towards the inter-pubic space than towards the sacrum, the rectum would doubtless have been easily opened. (Opus Citatum, S. 48.)

EXPLANATION.

Figure 1, represents a front view of the pelvic region of this case. The scrotum and penis are much corrugated, and drawn closely to the abdomen, the latter presenting a *para-phimosis congenita*. The right half of the scrotum is turgid, and contains the testicle, whilst the left half presents less turgescence, the testicle not having descended into it.

After Von Ammon.

- a, a.—The interior parietes of the abdomen.
- b.—The symphysis of the pubis.
- c.—The scrotum.
- d.—The penis.
- e.—The right half of the scrotum.
- f, g.—The dilated rectum.
- h, i.—The colon with its sigmoid flexure much smaller in diameter than natural.

Figure 2, represents a side view of a portion of the contents of the pelvis.

After Von Ammon.

- a.—The rectum.
- b.—The rectum terminating blindly in a conical point beneath the penis.
- c.—The bladder opened from the side.
- d.—The urethra opened from the side.
- e.—The artificial orifice made at the normal situation of the anus.

Figure 3, presents a posterior view of the contents of the pelvis.

After Von Ammon.

- a, a.—Both halves of the scrotum.
- b.—A probe indicating the entrance and the direction of Von Ammon's incision behind the rectum, and between it and the sacrum.
- c, c.—The superior part of the rectum descending in the form of a cone in front of the incision.
- d, d.—The intestines.
- e, e.—The interior surface of the peritonæum.

Fig. 1.

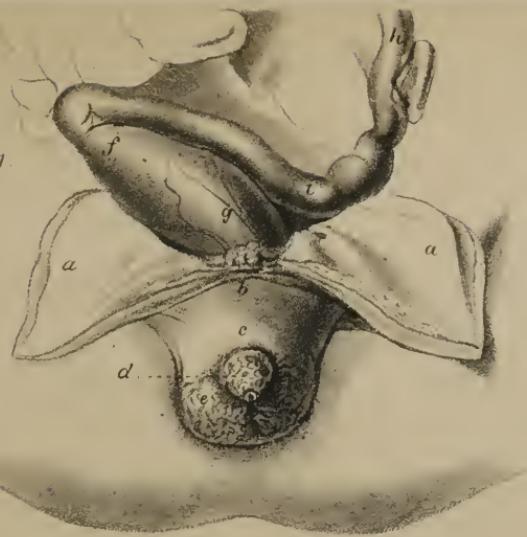


Fig. 2.

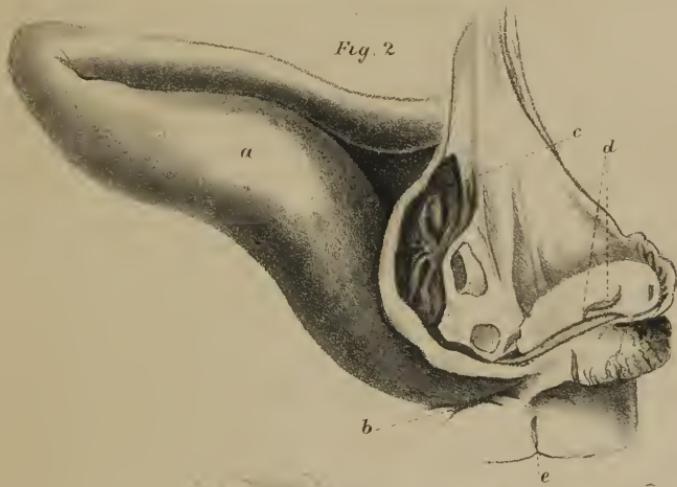


Fig. 3.

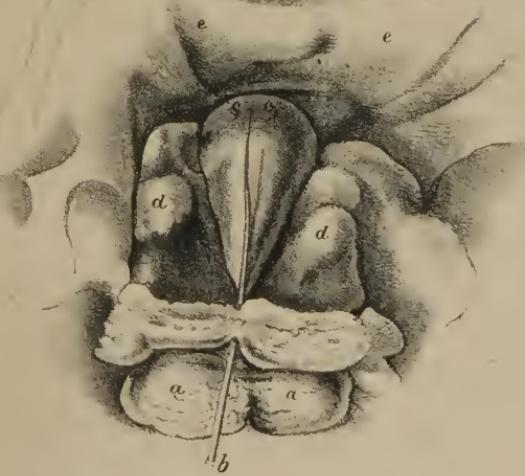


PLATE XV.

Plate XV. gives representations of the operation for the formation of abdominal artificial anus.

EXPLANATION.

Figure 1, presents a front view of the surgical relations of the colon.

After Bernard and Huette.

- a, a.*—The integuments.
- b, b.*—The external oblique muscle.
- c.*—The internal oblique muscle.
- d.*—The transversalis muscle.
- e.*—The lower edge of the liver.
- f.*—The distended cæcum.
- g.*—The descending colon with the sigmoid flexure seen below.
- h.*—The transverse colon.

Figure 2, presents a posterior view of the parts concerned, as shown by removing the dorsal structures.

After Bernard and Huette.

- a.*—The peritonæum.
- b.*—The kidney.
- c.*—The mesentery.
- d.*—The bowels.
- e.*—The colon.
- f.*—The spine.

Figure 3, represents the operation of Littré for the formation of an artificial anus at the right groin.

After Bernard and Huette.

- a, a.*—The outline of the colon.
- b, b.*—The extent of inguinal incision in the integuments.
- c, c.*—An instrument passed beneath the distended colon, in order to bring it to the front wound.
- d.*—The point of the colon which is to be perforated.

Figure 4, represents the shape and appearance of the anus formed by the operation of Littré. The long diameter of the opening corresponds to the line of the groin, and the bowel is so attached to the edges of the incision in the abdomen as to prevent contraction of the orifice, or the escape of the bowel into the abdomen.

After Bernard and Huette.

Figure 5, represents the operation of Littré, as modified by Pillore. Section of the cæcum.

After Bourgery.

Figure 6, represents Pillore's operation for iliac artificial anus completed. The wound in the intestine united to the wound in the integument by six points of twisted suture.

After Bourgery.

Fig. 1.

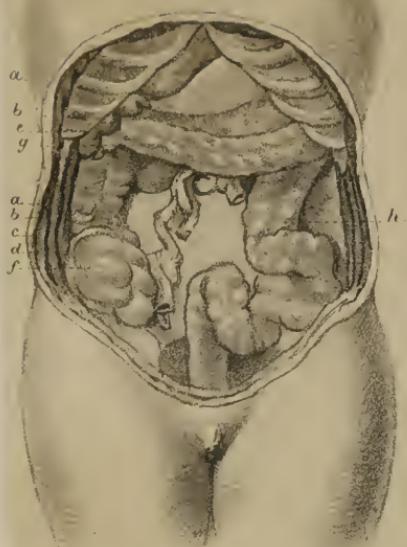


Fig. 2.

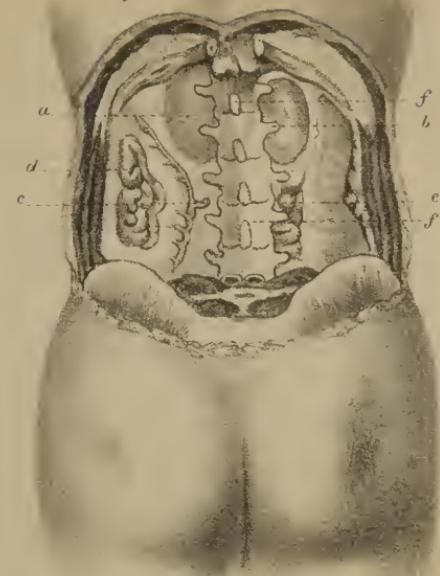


Fig. 3.



Fig. 4.

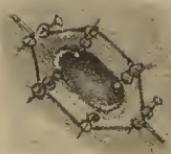


Fig. 5.



Fig. 6.



PLATE XVI.

Plate XVI. illustrates Callisen's operation for abdominal artificial anus, as modified by Amussat.

EXPLANATION.

Figure 1, represents the operation of Amussat, for the formation of an abdominal anus in the left lumbar region.

After Bernard and Huette.

a, a.—The outlines of the descending colon.

b, b.—The extent of the incision in the integuments.

c, c.—An instrument placed beneath the bowel to render it prominent.

d, d.—Ligatures passed through the bowel in order to attach it to the sides of the wound, before it is perforated.

Figure 2, represents the appearance of the artificial anus formed in Amussat's operation, showing the position of the sutures and the character of the opening.

After Bernard and Huette.

Figure 3, represents the lumbar artificial anus established by Amussat.

After Bourgery.

Plate XVI

Fig. 1.

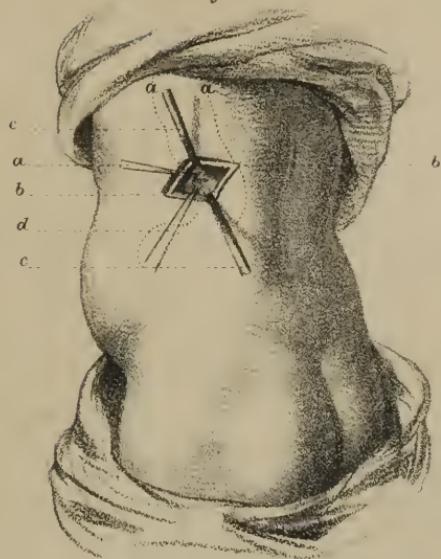
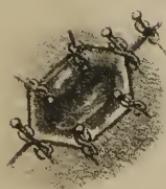


Fig. 3.



Fig. 2



ON THE
CONGENITAL MALFORMATIONS
OF THE
RECTUM AND ANUS.

CHAPTER I.

INTRODUCTION.

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S E C T I O N I I.

GENERAL REMARKS.

THE rectum and its terminal apparatus, the anus, like other portions of the organization, are liable to malformations and imperfections, the result of some extraordinary derangement of the acts of the plastic energies at some period during the evolution of the embryo or the foetus in utero.

From the remotest antiquity the congenital closure of the anus or the rectum was noticed by the Greek, the Roman and the Arabic physicians. They however looked upon it generally as beyond the power of art to remedy, and consequently as possessing no interest in their estimation beyond that of a *lusus naturae*.

These congenital vices of structure have been designated by the terms—

Imperforate Anus.—English.

Imperforatio. }
Atresia Ani. } Latin.
Clausura. }

Imperforation De L'Anus. } French.
Imperforation Du Rectum. }

Verschliessung Des Mastdarmes.—German.

There is however a manifest impropriety in the application of some of these terms to many of the malformations of these parts. Under the generic term—*Imperforate Anus*, malformations of the anus and the rectum are included which differ essentially from each other, with regard to situation, form, cause and result. It is therefore improper to denominate a case *imperforate anus*, in which the anus itself is *pervious*, although otherwise malformed; or in which the anus is perfectly natural, the deformity or imperforation being in the rectum, more or less distant above the normal anus; or in which there is an entire absence of the anus. Each one of

these terms is too exclusive in its signification to embrace all the malformations of these organs, or to be used as a generic term in relation to them, consequently not one of them can ever be so used with propriety.

Some of these vices of conformation are by no means uncommon, and all of them are in a practical point of view, more or less important. Many of them are remediable, and as they generally admit of no delay in their treatment, but demand prompt means for their relief, a knowledge of all the medical and surgical measures which experience has decided to be best adapted to remedy each particular deformity, is of the utmost importance to every surgeon and accoucheur. In the absence of such knowledge no practitioner in this respect is able to discharge his professional duties with satisfaction to the public, or with an easy conscience to himself. In these instances nothing can be expected from any efforts of nature towards effecting any substantial relief. If no operation is undertaken, death must soon follow from necessity. Nothing will avail but some surgical interference, for Nature has not dealt with the human species as she has with some of the insect tribes, for instance the *ant*, which according to the observations of the great natural historian Reaumur, has neither an anus nor any intestinal excrements that can be perceived. (*Mémoire pour L'Hist. des Insect.* tome vi. *Mem.* 10.)

No accoucheur should ever neglect the important duty of examining minutely every infant immediately after its birth, and for a day or two subsequently, to ascertain without a doubt that there is an anal aperture, that the canal for some distance above is pervious, and that the parts perform their normal functions. This important duty is too often neglected by persons engaged in the practice of midwifery. There is one thing, however, that is scarcely ever neglected, especially by female accoucheurs and monthly nurses, and that is the pernicious practice of thoroughly purging new-born infants, irrespective of circumstances. One of the pleas set up for

administering the various nauseating draughts to which new-born children are subjected, is the great dread in southern climates of *trismus nascentium*; the popular and erroneous idea being that *trismus* is the necessary result of retained meconium. This practice is especially pernicious in cases in which there is a permanent obstruction in the lower bowel from malformation. In such cases it is obvious that purgative medicine would prove not only useless, but highly injurious; indeed physic or improper food either would only induce paroxysms of pain and vomiting, and hasten the fatal result.—The little sufferer thus often falls a victim, either to ignorance or to a false philanthropy. It would be far better and much more humane to suffer such patients to die slowly of inanition, than to torture them to death rapidly by the free use of improper food or medicine. In hopeless cases, if absolute diet is enjoined, it is surprising how long the little patients will survive apparently with but little suffering before they succumb to the effects of inanition. Professor Dewees mentions two cases in point. “Dr. Hallam delivered a patient of a fine muscular, fat and healthy child, which had an impervious œsophagus, so that no food ever passed into the stomach. The child lived thirteen days, but was so wasted that its skin hung like a loose garment, and could be lapped and folded over its limbs.” In another instance says Dr. Dewees, “a child was born with every external appearance of healthy conformation, but upon attempting to give it a little molasses and water, it had nearly strangled. Upon looking into its mouth, it was discovered that there was no vault to it; neither was there a vestige of soft pallet. It never swallowed a drop—indeed every attempt was followed with such terrible distress by the fluid passing into the trachea, that the trial was abandoned. It lived ten days—became extremely emaciated and very yellow.” (*A System of Midwifery*, p. 215. Phil. 1832.) Food, in all cases of obstruction of the anus or the rectum from malformation, should be very cautiously adminis-

tered, or altogether proscribed, with the exception of the mother's milk, or a little sugar and water, until the obstruction is removed; and if this cannot be accomplished and death is inevitable, let this event take place gradually by inanition, rather than speedily by repletion. Purgative medicines in all such cases are entirely inadmissible; although I am aware that some able surgeons advise them for the purpose of forcing down, if possible, the end of the rectum preparatory to searching for it.

It is generally believed that the congenital malformations of these parts are quite uncommon. Mr. West says that "The affection (meaning *imperforate anus*) in any form is so rare as to render a correct estimate of the comparative frequency of its varieties by no means easy." (*Lectures on the Diseases of Infancy and Childhood, American Edit. p. 374. Phil. 1854.*) Mr. Collins says that he only observed one instance of it out of 16,645 children born in the Dublin Lying-in Hospital, during his Mastership. (*System of Midwifery, p. 509.*) Dr. Löhrer of Vienna says that he met with it only twice out of 50,000 new-born children. (*Constatt's Jahresber für 1842. Band I. S. 456.*)

Notwithstanding these statements, I am of the opinion that these malformations in some form or other are of much more frequent occurrence than is generally conceded, and that many children born with some one or other of them, are suffered to perish for want of proper and timely surgical assistance through either the ignorance, the neglect, or the mismanagement of midwives and monthly nurses. None doubtless but the most desperate and the most remarkable cases are ever reported, the rest being either entirely overlooked, or passed by unrecorded. But few cases appear to have occurred to the older surgeons, in consequence no doubt of the general employment of ignorant midwives, who, even if they discovered them, never revealed nor recorded them. These several circumstances may account for the paucity of information up-

on this subject among the old, and to some extent also among the modern surgeons. It is therefore impossible from the data before me to draw any satisfactory conclusions on the subject.

S E C T I O N I I I.

ÆTIOLOGY.

WITH regard to the primary cause which determines these or other congenital vices of conformation, nothing of a definite, or of a satisfactory character has yet been ascertained. The science of embryology which is now being so successfully cultivated, teaches that at any period during the evolution of the embryo or the foetus, the action of the formative energies in any part of the organization, may be so affected, or so influenced, as to become either partially or wholly suspended, or augmented, and result in the production of imperfect or anomalous organs, or in an entire want, or non-production of them. This is doubtless the source of many of the congenital malformations observed in the anus and the rectum ; but as the first or primary cause of this disturbance, or of this interruption of the plastic forces, is yet beyond our knowledge, and merely conjectural, all in relation to it therefore, is hypothesis.

Might not the result of power acting upon the foetus *in utero* through the imagination, or the feelings of the mother, be the cause of malformations ? Is it at all possible for the *maternal imagination* to be so wrought upon as to cause a partial or a total arrest of development, or an excess of development in any portion of the foetus ? Will any one deny that a sudden fright of the mother might not be sufficient to destroy the life of the foetus ? or refuse to admit that vivid and prolonged impressions of the mother, of whatever charac-

ter, might not give rise to disease in the fœtus, and such disease ultimate in the malformation of some organ? Might not some of these malformations occur associated with certain congenital and hereditary diseases, in the relation of cause and effect?

MM. Serres, Geoffroy Saint-Hilaire and Roux de Brignoles, concur in opinion that the congenital malformations of the anus and the rectum depend upon the deviation, the imperfection, or the absence of the haemorrhoidal arteries. Indeed their opinion is that the evolution of the organs in the fœtal state proceeds in a strict ratio with their supply of blood; consequently that the imperfection, atrophy, or absence of the organs generally, is attributable to the imperfection, or the absence of their nutrient arteries.

According to M. Serres, the incomplete development, or absence of a part depends upon deficient development of the artery which should convey to it the materials for its nutrition. If the artery is only partially developed, the part to which it is distributed remains in a state of atrophy; if it is totally wanting, the organ does not exist. M. Beclard in commenting upon this last assertion of M. Serres, says that it seems natural enough that the artery of a part should be wanting, when the part itself did not exist, and that it seemed impossible for him to decide which of these two facts, the absence of the organ, or the absence of the artery, was the cause or the effect!

Tiedemann, on the contrary, believing that the nervous system was developed before any of the other parts of the body, was of opinion that congenital malformations or anomalies depend upon the imperfection, or the want of certain portions of the nervous system. He found that whenever certain portions of the nervous system were defective or missing, the part to which such nerves were, or would have been distributed in the normal state, was also correspondingly defective.

or wanting. He is of opinion that the nervous system controls the formation and development of the embryo, and determines the particular form and disposition of the organs—hence he concludes that most deformities have their first cause in the irregular development of this system. (*London Medical and Physical Journal, July, 1826.* Also *Edinburgh Medical and Surgical Journal, January, 1829.*)

Tiedemann, in my opinion, has by no means proved clearly, as he pretends to have done, that the nervous system is developed before the sanguineous, that it determines the particular form and disposition of the organs, and that its imperfection is a first cause in the production of deformities, &c. The evidences, on the contrary, are decidedly in favor of the view taken by M. Serres, namely, that it is the imperfection of the arterial system, which, in fact, exerts such powerful influence in the production of malformations.

M. Andral sets forth the principle that whenever a part of an organ is imperfectly formed, or found to be partially or wholly wanting, those parts that precede it in the normal state have themselves undergone an arrest of development, to a greater or less extent. (*Précis d'Anatomie Pathologique, tome 1. p. 109. Paris: 1829.*)

But these highly distinguished authors entirely fail to give the primary cause of these malformations. The question still remains unanswered; and it might still be asked them too, with propriety—what is the cause of the deviation, the imperfection, or the absence of these arteries, or of these nerves? A logical mind can hardly be satisfied with the explanations they have given. The truth is, that all we *know* with *certainty* is, that we *know* nothing *certain* on the subject; and it yet remains a problem for future organologists to solve.

Some of the organologists endeavor to prove that all congenital malformations or anomalies have their origin in “*arrested development,*” which theory is now erected into a

law by Meckel and Geoffroy Saint-Hilaire, and most ingeniously illustrated by Serres in his various works on transcendental anatomy, and by Isodore Geoffroy Saint-Hilaire (*the son*) in his work on *Teratology*. This theory has been carried so far that some of its enthusiastic advocates even contend that "*a woman is only an imperfect or incomplete man; a man arrested in his development.*" This law, however, fails to apply to a number of the congenital irregularities of structure, of not unfrequent occurrence, so that M. Isodore Saint-Hilaire has been compelled to add another law—that of "*excès de développement*," in order to account for some of these anomalies; his father Geoffroy Saint-Hilaire, however, attributes all such to certain accidents during foetal life; whilst Meckel regards them as the results of disease in the ovum. But it was not my intention, neither does it fall within the scope of this work, to enter minutely into the subject of the cause of these congenital imperfections; and as I have perhaps already devoted too much time to it, I must not any longer detain the reader by instituting any further examination into the theories of these authors; nor into that which attributes all the congenital defects to the principle "*of the original germ being imperfect; or of its becoming so after impregnation.*" Those readers who wish to know more on this most important and curious subject, and to trace the herculean labors of the distinguished organologists, the immortal Geoffroy Saint-Hilaire, who was one of the most profound and indefatigable men of France in his day: the celebrated Prof. J. F. Meckel of Halle in Germany, whose reputation as an anatomist and as a man of profound science is unequaled, and M. Serres one of the most accomplished and distinguished anatomists of France, will find it of infinite advantage to consult their writings.

There are some of the congenital malformations of the anus and rectum which do not depend upon either an arrest of, nor on an excess of development, but are the result of disease in

intra-uterine life. A few such cases have come under my own observation. For instance the abnormal narrowing or contraction of the anus, which is sometimes observed in new-born children, and which, when attended with more or less thickening and induration of the integument, is the result of inflammation of the anus during foetal life. At other times this congenite contraction is caused by a preternatural activity of the sphinctores ani muscles. In such a case the coarctation from being at first purely spasmotic, may gradually become organic and permanent.

Obliteration of the anal aperture, or of the rectum for a greater or less distance above the anus, may be caused by *rectitis* during foetal life. In such a case the inflammation within the rectum causes, in process of time, a coalescence of its parietes, and thus produces the malformation in question. The same may ultimately result from permanent contractions of the anus and the rectum.

Peritonitis may occur during intra-uterine life, giving rise to adhesions between the intestines, and to effusion of lymph and serum into the abdominal cavity, and thus occasion malformations, if not the death of the foetus.

M. Desormeaux records the case of a child whom at birth displayed all the evidences of violent *enteritis*, but afterwards recovered. He is of opinion that the congenital contractions and obliterations of hollow canals—such as the oesophagus, intestinal canal, anus and urethra, &c. ought to be referred to the influence of previous inflammation. (*Dictionnaire de Médecine de Paris. tome XV. p. 403.*)

Dugès relates the case of a new-born child, in whom the abdominal viscera were found agglutinated by a yellow colored and firm lymph. There were false membranes on the liver, the spleen, the bladder, &c. The epiploon was adherent to the intestines, which were agglutinated into a lump, were yellow, hard and thick. (*Recherches sur les Maladies*

les plus importantes et les moins connues des enfans nouveaux—nes. Paris. 1821.)

Other instances, of the effects of former inflammation in the intestines of new born children, are related by the following authors—M. Billard. (*Traité des Maladies des Enfants nouveaux—nes et à la Mamelle, p. 444. Paris. 1828.*) Carus. (*Lehrbuch der Gynakologie. Band. 11. S. 251. Leipzig. 1820.*) M. Cruveilhier. (*Anatomie Pathologique du Corps Humain. Livraison. XV. Pl. XI. p. 2. obs. 2. Bruxelles : 1833.*)

It is not easy to determine to what cause these diseases of intra-uterine life should be attributed, at a time when the foetus in utero is so completely protected from all those influences from without which may induce inflammation after birth.

Sex has been supposed by some to exercise great influence in the production of defective congenital developments. It is most certainly true that malformations are most common among males ; but why it should be so seems to me not easy of explanation.

S E C T I O N I V.

ANATOMICAL AND PATHOLOGICAL CHARACTERS.

The congenital malformations of the anus and the rectum present a great variety of forms, from the most simple to the most complicated, so that it is by no means an easy task to enumerate and to describe them. M. Guersaut says that he has operated on more than thirty cases, and that each and every case was dissimilar. (*Gazette des Hopitaux. No. LXX. p. 280. Paris : 1857.*)

I will now consider the anatomical and the pathological conditions which constitute the most common of these vices of structure.

1. The anus may be more or less preternaturally narrowed at its margin and sometimes for a short distance above. This congenite coarctation, in such cases, is most always organic or structural, yet sometimes, though not often, it is purely spasmodic.

2. The marginal integuments of the anus may sometimes extend over the border of the sphincter ani, thereby inducing both deformity and contraction.

3. The anus and the rectum may be normal, but the simple thin and delicate membranous septum of foetal life may still exlst, and thus produce a complete occlusion of the anal orifice. The anal aperture too, is sometimes completely closed by a very thick and hard membrane, or a substance analagous to it.

4. The anus may be entirely absent, no sign whatever indicating where it should be ; the scrotal raphè being continued without interruption back to the coccyx. In such a case the rectum may also be partially or entirely absent, and the sphinctores ani, may or may not be present.

5. In the absence of the natural anus there may be a preternatural one, performing the functions of an anus, and occupying some extraordinary situation. In these instances the rectum may be partially or totally absent, and the colon also may be wanting.

6. The rectum at some point in the pelvis more or less distant above its natural outlet, may terminate in a cul-de-sac, and either hang loosely or be attached to some of the surrounding parts, there being no indication whatever of an anus.

7. The rectum may be interrupted at a variable distance above a naturally formed anus, by a thin or thick annular membranous septum like a diaphragn. Sometimes it is completely closed at several points by such membranous septa, its diameter, however, at those points remaining undiminished,

and the canal, with the exception of these partitions being entirely natural.

8. The anus being normal, the rectum for a greater or less distance above it, may degenerate into a solid mass resembling a cord, or be entirely wanting ; or this degeneration may be confined only to its superior portion, and reassume its cylindrical shape again as it approaches the anus, forming, as it were a pouch at its inferior extremity.

9. The rectum may be completely obliterated throughout its whole extent, by a thickening of its coats, its walls approximating and firmly adhering as though glued together ; or this obliteration may take place at one or two points only in the course of the rectum, the canal at these places appearing as if tied with a tape ; the anus and intervening spaces being natural.

10. The rectum may be present and present its cylindrical form, whilst its cavity may be completely blocked up with a substance of a cellulo-fibrous character ; no anus being present.

11. The rectum may terminate in the bladder or the urethra ; or in the vagina, or the uterus ; or in a cloaca in the perinæum, with the urethra and the vagina. In these instances there is generally no sign of a normal anus ; yet sometimes, though rarely, it does exist, and permits the introduction of the end of the probe for a few lines.

12. The rectum may terminate in the sacral region by an abnormal anus ; it may be prolonged in the form of a fistulous sinus, and terminate by an abnormal opening at different points in the perinæum ; at the glans penis, labia pudendi, &c. In these cases the normal anus is generally absent.

13. The rectum may be entirely wanting and its place supplied by a fatty cellular tissue. In these instances the colon ends in a cul-de-sac, with or without a ligamentous appendage in continuation, and is either adherent, or floats loosely in the

pelvic, or abdominal cavity. No normal anus exists, but sometimes an abnormal one does.

14. The rectum and the colon may both be absent. In these instances there is no natural anus, but often a preternatural one situated in some unusual or extraordinary region of the body, communicating either with the cæcum or some portion of the small intestines.

15. With any of these malformations there may coexist in the same patient a further deformity of some of the neighbouring sexual organs in a greater or less degree; or of some arrest of development—as fissure of the scrotum, with the glans penis and the meatus in the perinæum, spina bifida, the absence of a portion of an extremity, &c., &c.

I here consider it important, for the better understanding of the subject, to give a short retrospective view of the history of the development of the rectum and the anus.

These two organs, the rectum and the anus, in their evolution, like other portions of the organization, pass through several types and degrees of development before they attain that perfect form and arrangement destined to represent their permanent condition. The formative process may be impeded at any one of these stages of development, and cause such derangement of their evolution, as would more or less interfere with their normal growth, and exhibit at birth the precise character which was impressed upon them when the hinderance first occurred.

In the early period of foetal life the rectum and the anus are isolated, the former is lodged in the abdominal cavity, but it gradually descends into the pelvis to meet the latter; they both continue to progress, and to approach each other, attaining their proper dimensions by successive accretions, the first from the mucous and the second from the serous layer, and in due time their extremities meet and coalesce, and the common conduit is thus formed. Should arrest of development occur at any period during this natural process, in one or the other of

these organs, or in both of them at the same time, various malformations peculiar to each might be produced.

The rectum during embryonic life is confounded with the bladder, the urinary and genital canals terminating in one common cloaca—hence a derangement of the formative process, at this period, in either the rectum, or in any one of the genito-urinary organs, might cause one or all of them to be more or less defective—resulting in either a limited or an extensive imperforation of the rectum, or in some abnormal communication between it and the bladder, the urethra or the vagina.

At an early period of foetal life the anus, together with the other external openings of the body, is covered with a peculiar skin, somewhat analogous to that which covers the surface of the body. This skin, should the evolution of the foetus go on naturally, becomes gradually thinner, appearing ultimately as a peculiar secreting membrane, and is finally removed from its situation over the anal orifice by absorption. Should this normal process of absorption be arrested, or cease to go on, however, this skin or membrane would remain stationary over the anal aperture and consequently form an atresia ani. It will thus be seen that in such instances of imperforation of the anus, that the occluding skin or membrane was, in the early stage of foetal existence, a normal formation.

SYNOPSIS.

<i>The Congenital Malformations of the Anus.</i>	{ 1. Preternatural narrowing. 2. Occlusion by a thin membrane. 3. Occlusion by a thick hard membrane. 4. Partial or complete absence. 5. Abnormal.
<i>Occlusion of the Rectum.</i>	{ 1. By one membranous septum. 2. By two or more membranous septa.
<i>Obliteration of the Rectum.</i>	{ 1. By the agglutination of its parietes. 2. By the puckering of its parietes. 3. By the thickening and the induration of its parietes.
<i>The Congenital Malformations of the Rectum.</i>	{ 1. In a cul-de-sac. 2. In the bladder. 3. In the urethra. 4. In the vagina. 5. In a cloaca in the perineum with the vagina and urethra. 6. In the ano-perineal region, at different points. 7. In the sacral region.
<i>Preternatural termination of the Rectum.</i>	{ 1. Of the ureters. 2. Of the vagina. 3. Of the uterus.
<i>Absence of the Rectum.</i>	{ 1. Partial. 2. Complete.

SECTION V.

CLASSIFICATION.

TAKING as a basis of classification, the anatomical and the pathological condition of the various congenital malformations and imperfections of the anus and the rectum, I will distinguish them all into nine species, each one of which may comprise a greater or a less number of varieties. In this arrangement I have considered convenience and usefulness rather than an appearance of scientific precision. I am well aware that it is not perfect, but I trust it will be found sufficiently plain, comprehensive and correct for all practical purposes. This division corresponds somewhat to that suggested by Papendorf many years ago, whose divisions and definitions of the congenital malformations of the anus and the rectum, although quite imperfect, yet, are, for the purposes designed, as good as any I have observed of a later date. (*Dissertatio sistens observationes de ano infantum imperforato. Lugd. Batav. 1781. 4to.*)

FIRST SPECIES.

This species consists of a preternatural narrowing of the anus at its margin, and occasionally extending a short distance above this point.

SECOND SPECIES.

In this species there is a complete occlusion of the anal aperture by a simple membrane; or by the common integument, or a substance analogous to it, more or less thick and hard.

THIRD SPECIES.

In this species there is no anus whatever, the rectum being partially deficient and terminating in a cul-de-sac at a greater or less distance above its natural outlet, without any communication whatever, either externally or internally.

FOURTH SPECIES.

The anus in this species is normal, but the rectum at variable distances above it, is either deficient, obliterated, or completely obstructed by a membranous septum.

FIFTH SPECIES.

In this species the rectum terminates externally by an abnormal anus, located in some unnatural situation, as at some point in the sacral region ; or the rectum is prolonged in the form of a fistulous sinus and terminates by an abnormal anus, at the glans penis, the labia pudendi, or at different points in the perinæum. The natural anus being generally absent, its functions are performed by the abnormal one.

SIXTH SPECIES.

The rectum in this species opens preternaturally into the bladder, the urethra, or the vagina ; or into a cloaca in the perinæum with the urethra and the vagina. In these instances the normal anus does not generally exist.

SEVENTH SPECIES.

In this species the rectum is normal, with the exception that either the ureters, the vagina or the uterus, open preternaturally into it.

EIGHTH SPECIES.

In this species the rectum is entirely wanting.

NINTH SPECIES.

In this species the rectum and the colon are both absent, and there is usually an abnormal anus situated in some extraordinary part of the body.

SECTION VI.

GENERAL SYMPTOMS.

SHOULD any of these congenital vices of structure have unfortunately escaped the observation of the accoucheur or the nurse at the time of the birth of the child, its existence in the majority of instances would sooner or later manifest itself by a train of morbid phenomena simulating strangulated hernia, the result of the retention of the meconium and other matter. If no alvine dejections take place within twelve or twenty-four hours after birth, the child gradually becomes restless, and by its peculiar plaintive cries manifests the suffering it now begins to endure. These cries are generally attributed by the nurse, to colic, and the little sufferer is treated accordingly with all kinds of medicines, but generally to none but the worst of purpose. The abdomen, especially in the hypogastric region, now becomes enlarged, tense, hot, shining, and painful upon pressure, the respiration becomes difficult and irregular, and the pulse frequent, small and contracted. To these symptoms, if no amendment soon takes place, vomiting will be added, first, of all the milk and other fluids swallowed, then of the mucous and biliary secretions, and finally, of the meconium, or a dark brownish matter analogous to it. Should no relief still be afforded the little sufferer, these symptoms will become augmented in violence; the diaphragm and other abdominal muscles will become excited to violent expulsive efforts, during which respiration will sometimes become suspended, the face will become swelled, discolored and covered with perspiration; the voice sooner or later will become almost extinct; there will be hiccup, with coldness and flexure of the extremities and convulsions. In the male, inflation of the scrotum and penis sooner or later takes place. Should matters thus continue, death is inevitable and is soon ushered in; and it usually takes place between the third and the eighth day, according to the vigor of the little patient.

Before death occurs there is often a general yellowness of the skin. When the case is protracted for a number of days the emaciation becomes extreme, and the patient dies from the effects of inanition.

Strange to say, that cases of complete occlusion of the rectum have occurred, in which life had been prolonged for a number of days, and even for months without any evacuation from the bowels, and before any violent symptoms had taken place.

Wolf mentions a case of imperforation of the anus and rectum in which, strange to say, the deformity was not discovered and no unfavorable symptoms manifested themselves until the evening of the twelfth day, the child during this time not having had any motion from its bowels, when it was attacked with vomiting, hiccup and convulsions, attended with distension and hardness of the abdomen and great prostration. [Vide Case LIX.]

A still more remarkable case of imperforate rectum is reported by Dr. A. B. Shipman of Courtlandville, in the State of New-York. In this instance the child lived three months without passing anything from its bowels. He says the child was nearly as large as ordinary children of that age, and was not afflicted with vomiting or crying more than many are, who are considered healthy. [Vide Case XXIX.]

Mr. West says that Mr. Arnott communicated to him a case in which the child lived seven weeks and three days, the rectum being entirely absent, and the colon terminating in a blind sac, and floating loosely in the abdominal cavity. (*Op. cit. p. 376.*)

De La Marre mentions an instance of a child having an anal imperforation, which lived six months without ever having had any evacuation from its bowels. In this case the milk and everything else taken into the stomach were constantly ejected by vomiting. (*Journal de Médecine de Paris. année. 1770. tome XXXIII. p. 510.*)

A case is reported in the “*Provincial Medical and Surgical Journal*” for March, 1851, in which a child having an imperforate anus lived one hundred and two days without having any evacuation from its bowels, and during this time never vomited.

Death in instances of imperforation of the anus or the rectum, is usually the result of enteritis, peritonitis and intestinal paralysis.

Sometimes previous to death in consequence of the violent expulsive efforts to overcome the obstruction, the colon, or some other portion of the intestinal canal bursts, and its contents are poured into the peritoneal cavity, death being ushered in by the sudden supervention of a state of collapse. A case of this kind is related by M. Fourcade. (*Revue Médicale de Paris. année. 1830. tome VI. p. 52.*)

On dissection, the intestines will be found enormously distended with gas, meconium and other matters, and highly inflamed.

The distention or tympanic state of the abdomen in these cases is caused, in part, by the disorganization which, at an early period takes place in the contents of the intestines, by which great quantities of gas are disengaged. The intestinal nerves become affected, hence the spasms. The blood vessels of the lower extremities too, become compressed, and this compression induces congestion of the heart, lungs, and brain. This phenomenon is very evident when the distended cavity of the abdomen presses upon the thoracic viscera. The compressed lungs no longer admit full respiration; the vital transformations of the blood are inadequately made, and at the same time, as the excrementitious matters of the body cannot be carried off by defecation, the composition of the blood becomes such as no longer to afford any nourishment to the vital organs.

Conjointly with the general signs of intestinal obstruction, there are in each case some special indications of the peculiar

form of malformation to which the obstruction is due. These special symptoms will be fully given in the following chapters, on the different species of malformation.

The pathognomonic sign is obtained by the direct inspection of the anus and the rectum.

S E C T I O N V I I .

PROGNOSIS.

ANCIENTLY the malformations of the anus and the rectum, together with those of the genito-urinary organs, were looked upon as necessarily fatal, and the unfortunate victims of them were regarded in the light of monsters, and left to perish. Even at the present day this sentiment prevails to a certain extent, and the subject is still surrounded by no inconsiderable degree of mystery, the most insignificant deviations from the natural standard being apt to be exaggerated and invested with an importance which by no means legitimately belongs to them.

When we take into consideration the fragility of the subjects, the deplorable nature of some of the species of these malformations, and the formidable character of some of the operations necessary for their relief, the hope of ultimate success does indeed appear but slight; yet such are the great improvements that have been, and are being made in modern surgery, that the evil is by no means deplorable, even in some of the worst cases, as will be shown hereafter. No case should be abandoned in despair, although surrounded by the most discouraging circumstances. Many of the cases may be relieved immediately by simple and appropriate treatment, and others admit of certain relief, by prompt surgical measures, which not only save, but prolong life. The surgeon

must be very careful, however, not to promise the parents or the friends of the child too much even in the most simple case, recollecting how natural it is for them to imagine that if the operation succeeds, all will be well, and that the child will be left in every respect perfect. This would be a great mistake, as every surgeon knows who has had any experience in endeavoring to remedy defective formations. Therefore, to prevent misconception on this point, and the evil consequences of it, the surgeon must previously explain to them that the operation may indeed afford an outlet and immediate relief; but that such an artificial opening or anus, not being formed by nature for the specific purpose, cannot be expected to possess all the powers or to perform all the functions of which the natural anus would have been capable.

The most favorable cases of course are those which require the least surgical assistance—such in which there is a contraction of the anal orifice, and requires but simple dilatation, or such in which the anal orifice is obstructed by a membrane which only requires to be divided.

The most formidable cases are those in which there is a considerable deficiency, or an entire absence of the rectum, and in which there exists no outlet whatever. In all such cases, without an operation, death soon takes place from necessity. Some surgeons, however, consider all such cases necessarily fatal, and beyond the power of art to remedy: yet, as I will hereafter show, even a number of such cases have been relieved, by either the operation of *proctoplasty* or *colotomy*. In such a case even a doubtful remedy should be preferred and attempted in preference to the certain death of the infant.

Those cases in which the rectum opens into the bladder by an abnormal anus, or into the urethra, or the vagina; or in which there exists a preternatural anus on some part of the body, are not so formidable and do not terminate in death so quickly. Some of them may be entirely relieved, others

greatly benefitted, whilst others again admit of palliative treatment only.

Some very remarkable cases are recorded of life having been sustained and prolonged for days, months, and even years, in which no anus whatever existed, nor in which had any operation been performed. In these instances there was considerable deformity too of the genito-urinary organs.

A man forty years of age was seen by Bartholin, in whom no anus existed, but who discharged his faeces from his mouth by means of a horn, made for the purpose, and who voided his urine from the umbilicus. (*Historia Anatomicæ, cent. I. observ. LXV. p. 113.*)

Baux saw a girl fourteen years old who had neither an anal, a genital, nor a urinary opening. There was not the least appearance of these apertures, the skin being smoothly continued over the situation naturally occupied by them, as on other parts of the body. At the end of every third day she experienced considerable pain around the umbilicus, and immediately after would eject faecal matter by vomiting. Her urine was entirely voided by the nipples every three or four hours. This girl was well formed in other respects, and of a very agreeable person. She had a good appetite, slept well, and had general good health. (*Journal de Médecine de Paris, tome VIII. p. 59.*)

These, however, are extraordinary cases, they form the exception to the rule, and they must not lead the practitioner to the conclusion that in cases similar no operation for their relief should be undertaken. No one will dispute the necessity of an operation in a case of *atresia ani*, because single cases have been known to exist in which children have lived for days, months, and even years without such surgical interference. The observation made by the celebrated Callisen many years ago, still stands firm, and must not be forgotten. "The atresia ani," says he, "will certainly be followed by death, unless a passage is formed and maintained." (*Systema Chirurgie, Hod. tome II. p. 840. Hafniæ. 1800.*)

The operation for the establishment of an artificial anus, either in the perinæum, or in the abdomen, seems so grave a one for a child at so tender an age, that many surgeons decline it altogether. This consideration alone, however, should by no means deter the surgeon from operating, for it is an established fact, and the knowledge of it should be more universally known—that children sustain an operation much better soon after birth, than at a later period. This is doubtless in consequence of the small vital development of new-born children, who, in this respect, are similar to the inferior animals. This analogy rests upon the recuperative power common to them both, by virtue of which wounds in both are followed by very slight inflammation, or even none at all, and show a direct tendency to heal by the first intention.

CHAPTER II.

THE FIRST SPECIES OF MALFORMATION.

S E C T I O N I .

DESCRIPTION.

1. This species of congenital malformation is characterized, as has been already observed, by an abnormal narrowing of the anal orifice, which contraction, however, is by no means always confined to the verge of the anus, but is occasionally found extending up into the canal itself, and consisting sometimes of numerous folds projecting into the cavity of the rectum, and which, according to their degree of development, more or less obstruct the physiological functions of it. Sometimes the marginal integument of the anus extends over the border of the sphincter muscle and thus produces both contraction and deformity.

2. This congenital narrowing is usually organic, being attended with more or less thickening and induration of the integument about the anus, the result doubtless of previous inflammation; at other times however, the contraction is purely spasmodic, depending upon a peculiar condition of the *sphinctores ani* muscles which are found to be preternaturally active.

3. The anal opening and the cavity of the rectum, in these instances of congenital contraction, may present all the different degrees of stricture, from that into which the point of the smallest probe cannot be introduced, and impossible for the meconium to pass, to that which opposes no obstruction what-

ever to the common sized probe, and but little to the passage of the meconium or the excrementitious matters.

4. The situation and the form of the anus in this species of malformation are generally normal, but the preternaturally contracted or puckered-up orifice, always presents the pliated appearance of the mouth of a purse tightly drawn.

5. The signs of the congenital coarctation of the anus, or the rectum, are the absence or the deficiency of the meconium in the napkin which the child wears, the progressive and painful tension of the abdomen, and vomiting. The pathognomonic sign is furnished by the direct inspection of the anus.

6. There is one variety as it may be termed, of this species of malformation which must not be omitted here; it is the anal contraction sometimes observed in new-born children who have a syphilitic taint which is the cause of it. It is of the utmost importance that the surgeon or the practitioner of midwifery should make the distinction between it and the other varieties, as it requires an entirely different treatment.

His attention will be first called to it by some of the same signs which characterize the other varieties of this species—such as pain, severe straining efforts and difficulty, at each evacuation, and a peculiarly small aperture. On a proper examination, however, there will be discovered other signs or appearances which will explain the true nature of the case—such as discolorations of the surrounding integument; excoriations, and even superficial ulceration in the adjacent structures, with a considerable exudation; small fissures of the anus, as well as about the commissures of the lips; soft granulations, or condylomata are also sometimes present at the verge of the anus, discharging a tenacious matter. Other constitutional symptoms are also usually present—such as copper-colored blotches on the skin; a tendency to cracking and excoriation of the skin about the hands, feet and

nates; an imperfect development of, or a tendency to a separation of the nails; general emaciation; suspicious appearances about the mouth and tongue, and a very remarkable and peculiar hoarseness in crying. Many, if not most of these symptoms, aided by the history of the parents will lead the surgeon to distinguish this peculiar congenital contraction of the anus, and enable him to make his diagnosis accordingly.

7. There are but few cases of this species of malformation on record—hence many imagine that it is quite rare. I am, however, of opinion that it is much more common than is generally supposed, and the reason that so few cases are reported, is that they are usually so simple in their nature and so easily remedied that no further notice is taken of them by the surgeon. The slight ones too, are doubtless often entirely overlooked. Two cases only of this species have come under my own observation.

8. Immediate attention should be given to children who have a congenital stricture of the anus or the rectum.

S E C T I O N III.

TREATMENT.

1. THE treatment of this species is generally simple, easy of accomplishment and most always attended with success. It is either by dilatation alone, or by incision and dilatation combined, according to the nature and straitness of the contraction. In all cases in which the common probe can be passed, simple dilatation, if persevered in for a short time, scarcely ever fails to effect a cure, especially if commenced in time. It is not only applicable to the organic contraction,

but equally so to that caused by a preternatural activity of the sphinctores ani muscles.

2. The dilatation should be effected by means of wax, gum-elastic or metallic bougies, similar in construction to those used for the urethra, but about two-thirds shorter. I prefer the wax bougie for this purpose, to all other kinds. The bougies should consist of a regular series of gradually increased sizes. The first one should be of such a size as to pass the constriction easily, care being taken not to make too rapid or too great distension, but to use the same instrument for a day or two in succession before exchanging it for a larger one. The bougie should be used once at least in twenty-four hours, by simply passing it through the contraction, and then immediately withdrawing it. Prolonged dilatation—that is, the retention of the bougie for a length of time, I repudiate in such cases. An enema of warm flax-seed tea with a little pure olive oil in it, should be administered about an hour previous to using the bougie, in order to empty the rectum, and prevent the dangerous accumulations which are liable to take place, as well as to facilitate the introduction of the instrument. The bougie should always be warmed and well lubricated with simple cerate previous to its insertion.

3. This course should be persevered in until the orifice has acquired its normal size, or until the full amplitude of the canal is restored. It is important, however, even after the dilatation has been carried to the full extent, to use the bougie occasionally in consequence of the disposition of the orifice sometimes to contract again. It should therefore be closely watched for some time afterwards.

4. Should any undue irritation or inflammation be excited in the parts during the process of dilatation some soothing means should be used to allay it—such as warm mucilaginous and opiate enemata, frequently repeated, or the repeated employment of the warm hip bath which is one of the very best means for this purpose; indeed the frequent employ-

ment, during the use of the bougie, of warm injections of the decoctions of *althea* or *flax-seed*, conjoined with the warm hip-bath, would greatly tend to, if not entirely, prevent irritation or inflammation.

5. In the treatment of some of these cases, the little finger of the child's mother or nurse if either of them is intelligent, might be substituted for the bougie, after the orifice has been sufficiently dilated by that instrument to admit the finger. The finger would greatly aid the bougie in overcoming the stricture and preventing its return, being one of the best instruments for that purpose, as it can be so easily insinuated into the orifice, and in such a manner too, as to cause but little, if any pain, and no injury.

6. The congenite contraction in some instances is so slight that it is apt to be overlooked or neglected during the whole period of infancy, and in other instances the treatment is abandoned too soon, or before the dilatation has been carried far enough; all owing doubtless to the fact that in infancy the faeces are quite thin or soft, and small in quantity, and expelled with comparative ease, and with but little pain even through a small orifice. This immunity from immediate difficulty and danger will not always exist, however; for as the child advances in years, the faeces become more abundant, more consistent or solid, and consequently more difficult to expel through a small aperture—hence it is highly important to treat those cases, at an early period, even if there should exist but slight obstruction to defecation, for the evil consequences resulting from such neglect, in the after life of the little patient, should never be lost sight of. M. Boyer relates two very interesting cases of this character, in which the congenital narrowing had been either overlooked or neglected in infancy. One was a male eighteen years of age, the other was a female thirty-four years old. Both were cured by incision and dilatation, and both suffered severely every day of their lives previously. (*Traité des*

Maladies Chirurgicales. tome. VI. p. 496. Paris, 1849. Cinquième Ed.)

7. In extreme congenital narrowing of the anal orifice, in which the contraction is so small, rigid and unyielding, that it would be most difficult if not absolutely impossible to insinuate even a small probe, incision is essential to success, especially if considerable time has been suffered to elapse, and the symptoms have become urgent. Here the process by dilatation alone, is too slow, as the child is in imminent danger of perishing from the effects of the accumulation and the retention of the meconium and other matters, and requires immediate relief. The indication in such a case is to make one or two lateral incisions of just sufficient extent to afford complete exit to the contents of the intestines; to keep the orifice and canal pervious by the use of soft tents and subsequently, if necessary, to complete the cure by dilatation. A slight incision on each side should first be made with the sharp-pointed bistoury to allow a passage to the pent up faecal matters; an enema of warm flax-seed tea should then be administered so as to unload the rectum completely, and afterwards the incisions should be enlarged if necessary, by the probe-pointed bistoury, either with or without the director, according to the extent of the contraction. If the director is used, it should be introduced to the depth of from five to eight lines, with the bistoury carried on its groove, its handle drawn outwards, that the extremity of its blade may press in the groove of the director; and then it should be drawn obliquely downwards and outwards toward the ischiatic tuberosity in such a manner that the inferior part of the incision may extend out from two to four lines from the verge of the anus. The opposite side should in like manner be operated on. In making these incisions care should always be taken, not to extend them out too far lest all the muscular fibres of the sphincter be cut across, causing them to retract and pulling the edges of the incision

too far from each other, and thus giving rise to an ever after, or long continued, troublesome, involuntary discharge of faeces. To avoid this great evil, some of the muscular fibres should always be left undivided, and the cure finished by dilatation. In order to prevent the reunion of these divided parts and to keep the orifice and canal pervious, tents made of *patent lint*, well besmeared with simple cerate, or dipped in *glycerine* should be introduced, kept *in situ* by the T bandage, and removed frequently and fresh ones inserted. After using the tents for several days, the bougies should be used daily until the orifice and canal are sufficiently dilated, and the cure completed.

8. I wish it distinctly understood that I protest against incision except in extremely urgent cases; for it is an indubitable fact that the smallest contraction may sooner or later be overcome by gradual dilatation; and it is also equally true, that even after incision has been performed, dilatation is absolutely necessary in almost every case to complete the cure.

9. When the anal stricture is the result of a rigid or powerful contraction of the *sphinctores ani* muscles, and no time left to practice dilatation on account of the urgency of the symptoms, a division of some of the fibres of those muscles will at once be required; in all the instances, however, in which it exists in a mitigated form dilatation will relieve it, and render the operation of division unnecessary.

10. When the malformation consists of an extension of the marginal integument of the anus, this should be nicked in several places, or divided in several places with the probe-pointed bistoury, from within, outwards, and a mèche of charpie besmeared with simple cerate introduced, and constantly worn for several days; then the bougie should be used until the cure is finally accomplished.

11. The syphilitic contraction of the anus will generally

yield to an alterative course of medicine, such as the nature of the case shall denote to be necessary. The local difficulty disappears as the constitution is restored to health. Soothing emollient applications are the best topical remedies. Should there be any excoriation or ulceration about the part, the surface should be slightly stimulated daily by a solution of the nitrate of silver, or by the ordinary mercurial lotions, the black or the yellow wash.

S E C T I O N I I I .

CASES AND REMARKS.

CASE I.—On the 21st of January, 1848, I was called, at the request of Mr. W. D. Greenwood, to see a large and healthy looking male mulatto child, three days old, whose mother, Sarah Fry, was a free woman and resided in an alley between Camp and Magazine streets, New Orleans; I was told that the child, had taken quite a quantity of molasses and water to purge it; had not passed more than a tablespoonful of any thing from its bowels since its birth, and that it was constantly making fruitless efforts to do so. Upon examination, I found the situation and the form of the anus to be normal, but its orifice was so contracted that it offered almost the same resistance to the expulsion of the meconium as though it were completely imperforate. The contraction was confined solely to the verge of the anus. The other organs were all normal. Vomiting had already commenced and there was considerable tumefaction of the hypogastric, as well as of the anal region, the child being quite restless and rapidly becoming dangerously ill, from the retention of the meconium and gas, and the distention of the rectum. I at once determined on the operation, and whilst Mr. Greenwood held the child, properly placed upon his knees, I thrust into the contracted anus the straight sharp-pointed bistoury and made an incision on the right side, of from three to four lines in extent. A large quantity of meconium and gas at once followed the withdrawal of the instrument. The opposite side was then incised in the same manner. A warm enema of milk and

water was now thrown up into the rectum, which was soon followed by a still further evacuation of meconium and gas; after which a tent made of lint and besmeared with simple cerate was introduced and the child placed by the side of its mother in bed, already much relieved. The haemorrhage was quite inconsiderable. The after treatment advised in this chapter was strictly followed up, and at the end of ten days the incisions were entirely cicatrized, leaving a sufficiently ample anus which performed its natural functions admirably without any further treatment.

CASE II.—Mrs. Spangler, an intelligent German, the wife of a poor laboring man residing on Danphin street, New Orleans, brought to my office, on the 20th of February, 1852, a quite feeble and emaciated female infant six weeks old; stating that from its birth it has had the greatest difficulty in voiding its stools, owing to the anus being almost closed. I found upon examination no imperfection whatever of the parts, except the narrowing of the anal orifice, which extended a few lines up the canal, and which scarcely admitted the end of the common probe. The mother informed me that her child never had an evaenation from its bowels without struggling and crying, and that during such paroxysms, quite a swelling in the anal region would take place, and that the fluid faeces would sometimes be forcibly discharged in jets from the little orifice, like from the pipe of a small syringe. I expressed my surprise that the child should have lived so long with so small an anal opening; when she remarked that she was in the constant habit of injecting warm water into the bowel with an ear syringe, whenever the child experienced more than usual difficulty in voiding the faeces, and that she frequently inserted a knitting needle into the orifice in order to remove the slightest obstruction that might occur. These means she said never failed to cause a tolerably free discharge of thin faeces, especially when she made pressure with her fingers on each side of the anus. It was quite evident to me that the life of the child was thus far prolonged by the use of these important and judicious measures. She also informed me that three of the physicians of the city had examined her child and had proposed the operation by incision, but that she had in the most positive manner refused her consent.

I immediately commenced the treatment of this case by dilatation, using for this purpose the wax bougie according to the directions already given in this chapter. By assiduously pursuing this course for four weeks, a most decided

improvement had taken place, and on the first of May, ten weeks from the commencement of the treatment, I dismissed the child, cured. Nine months afterwards the child continued well.

CASE III.—Roonhuysen mentions the case of a female infant four months old, whose mother from its birth had constantly been compelled, in consequence of the smallness of the anal orifice, to press out the faecal matter with her hands. The orifice however, at length became so small that the faeces could no longer be pressed through it. Great distention of the abdomen soon followed, attended with violent pains and excessive fever, which seriously endangered the life of the child. An incision with an abscess lancet was at once made through the skin surrounding the anus, and the incision further enlarged with scissors, upon which a large quantity of excrementitious matter was discharged. The aperture thus made was subsequently kept open and enlarged by the use of tents made of lint and embued with some mild ointment, and the child soon recovered. (*Medico-Chirurgical Observations. Translated from the German. Part II. Observation 2. Also, Appendix of Observations. Part II. Observation I. London: 1676.*)

CASE IV.—The celebrated Scultetus reports a case of this species which occurred in his practice. In 1640 he was called to see a male child, son of a citizen of Ulm, the anal orifice of whom was so small as scarcely to admit the end of a slender probe. He advised a surgical operation, but the parents of the child were unwilling to allow him to perform it; consequently he attempted the dilatation of this narrow orifice, and ultimately succeeded by the continued use of tents made of the roots of *gentian*, dipped in oil, introduced and suffered to remain in until by imbibing the moisture of the parts, they would become swollen and thus enlarge the almost imperforated anus. Scultetus mentions having known a midwife of Patavia who was in the practice of perforating the anus when wholly closed, with a sharp-pointed probe, and of enlarging the opening thus made with tents of gentian roots. (*Armamentarium Chirurgicum. Observatio. LXXVII. p. 323. Amstelædami: 1741.*)

I would here remark that various substances which from their nature rapidly increase in bulk, by attracting or imbibing fluids—such as the *Gentianæ radix, sponge tent, cat-gut,*

&c., are even at the present day recommended in the treatment of the cases under consideration. This method of dressing, however, simple and innocent as it seems, may cause serious accidents; for the use of such substances in such cases is by no means void of danger. M. Guersant mentions a case in which an operation had been performed for an imperforate anus, and at the close of which a piece of prepared sponge was placed in the wound, and suffered to remain too long in, producing peritonitis and subsequent death. (*Gazette des Hopitaux de Paris*. 1857. No. LXX. p. 277.)

CASE V.—Mr. A. Copeland Hutchinson, of England, reports the following case of contraction of the anus, with a communication of the rectum with the vagina. I have classed it among my first species, although in reality it does not belong here. “My friend, Mr. Barthurst, of Strood,” says Mr. Hutchinson, “had a case where the faeces came per vaginam, the natural anus being barely sufficient to admit of the entrance of a good sized probe, but communicating with the gut. By gradually dilating the natural anus with bougies in early infancy, the faeces were expelled with as much freedom, after a certain time, as if the passage had never been closed; and what is remarkable, the communicating aperture in the vagina experienced a spontaneous cure. The child is now, (November 1825,) ten years old. (*Practical Observations in Surgery*. 2nd Ed. p. 257. London. 1826.)

CASE VI.—“The expulsion of the meconium,” says Cooke, translator of Morgagni, “is sometimes prevented by an extremely rigid contraction, so that a probe can scarcely be introduced. A child was brought to me some years ago with this imperfection, and the faeces passed through the vagina.” (*Cooke’s Morgagni*. Vol. II. p. 110. Boston: 1824.)

CASE VII.—The following case is reported by Mr. W. Ferguson. “In a new-born infant, brought to me some time ago, the opening at the lower part of the rectum was so small that the meconium could not be discharged only by drops; a large collection above had taken place, and the protrusion in the perineum was considerable. A probe-pointed bistoury was introduced, and four notches were made which permitted a

copious evacuation." (*A System of Practical Surgery*, p. 545, Phil.: 1853.)

CASE VIII.—Mr. T. J. Ashton of London mentions a case, in which it appears no surgical treatment had been adopted until the child was two years old. He says, "Some years since I saw, in conjunction with Mr. Morton, a child about two years old, with congenital contraction of the anus, which would not admit a larger instrument than a number eleven bougie; the belly was tumid, and the general health impaired. Dilatation was had recourse to; in a short time the bowels could be entirely relieved, and with the aid of tonics, the patient progressed favorably." (*Diseases, Injuries and Malformations of the Rectum and Anus*, p. 27. London: 1854.)

CASE IX.—Dr. Townsend, Senr., saw a child at the Massachusetts General Hospital, which was born on Sunday, the 4th of September, 1854, and which had an *imperforate* anus. No operation was permitted on it at that time. It was seen again on the Thursday following. A little meconium had passed through a small *pin-hole* aperture. A probe passed in, and the opening freely dilated, the rectum being found free. The child did well. (*Records of the Boston Society for Medical Improvement*. Vol. II. p. 11. Boston: 1856.)

CASE X.—Dr. Seavers, of Jamaica Plain, presented to the 'Boston Society for Medical Improvement,' through J. B. Jackson, M. D., September 13th, 1848, a specimen of congenital stricture of the anus. The child died at the age of eighteen months, of a dysenteric affection. At birth the opening was only large enough to admit a probe. It was gradually enlarged by the aid of bougies. The intestine above the stricture was considerably dilated. (*Records of the Boston Society for Medical Improvement*. Vol. III. p. 270. Boston: 1859.)

CASE XI.—M. Devilliers met with a case in his practice, and which he reported to the "Medical Society of Paris," of a child which had both an obliteration of the anus and of the urethra. Upon examining the child with care, M. Devilliers found that the malformation arose from agglutination of the integument at the anus. He cautiously separated the lips of the anus, and the walls of the rectum, for an extent of about six lines with his right index finger, then using a grooved sound, he reached the point where the meconium was, and

thus completely opened the passage. He attempted in a similar manner to overcome the agglutination of the urethra, but failed; he, however, finally succeeded by the aid of a small sound. The child died fifteen days after. No autopsy. (*Revue Médicale de Paris. Mai, 1835. p. 286*).

CASE XII.—The following case was reported to the "Peninsular Journal of Medicine and the Collateral Sciences," by S. L. Andrews, M. D. "In a private letter from my friend, Dr. Baldwin, of Lahaina, Sandwich Islands, I have an interesting account of a case of congenital contraction of the intestinal canal. As Dr. B. has given me the case more in detail than is needful for your Journal, I have abridged it for your use. The child, a fine-looking, plump female, weighing $8\frac{3}{4}$ lbs., was born Dec. 5th, 1838. The first indication of anything abnormal was the rejection of a little sweetened water given a few hours after birth. On the following morning castor oil was rejected with bilious vomiting. A judicious use of cathartics, including suppository and enemata, the latter sometimes administered through a gum-elastic catheter introduced several inches into the rectum, failed to produce any adequate evacuation of the bowels. Castor oil and other cathartics, and sometimes enemata, only excited vomiting, usually bilious. At length, the contents of the intestines, in a very offensive state, were thrown off by vomiting. All that was passed, per anum, was fragments of hardened meconium, shaped to the intestines, and amounting to several inches in length. The last fragment tapered to a point at its upper extremity. Death on the 13th.

"Diagnosis, contraction of the intestine, which was confirmed by the autopsy.

"The rectum and colon were about half the natural size, or perhaps a little more, except a portion in the middle of the arch, where it was reduced to about half the diameter of that on each side of it. The cæcum was natural, but for twelve inches above it the small intestine was small indeed, not larger than the narrowest tape, and the canal too narrow to admit anything solid; the next six inches, proceeding towards the stomach, was very narrow, but contained a few small pieces of hardened meconium. Eighteen inches above, this was larger, but crowded with viscid meconium. The remainder of the intestine to the stomach was twice the natural size. The gall-bladder was large and full. The stomach and upper part of the intestine was filled with a liquid appearing

like a mixture of bile and milk. The child had nursed until the last day.

"The father of the child, an efficient and devoted missionary under the American Board, has disproportionately short limbs, both upper and lower. He is also afflicted with exostosis. A sister is afflicted in the same manner, and some of the children of both brother and sister have the same morbid state of the bones."—(*Peninsular Journal of Medicine and the Collateral Sciences*. 1839.)

CHAPTER III.

THE SECOND SPECIES OF MALFORMATION.

S E C T I O N I.

DESCRIPTION.

1. This species of malformation, *atresia orificeū ani*, is characterized by the closure of the anal orifice by a thin transparent membrane, somewhat resembling the hymen, through which the meconium may often be seen, yet sufficiently strong to prevent its escape from the rectum. This membrane, or cutano-mucous lamina, however, is sometimes quite thick and hard, and simulating the common integument of the anal region.

2. This vice of conformation is readily indicated by a small soft and fluctuating hemispherical tumor, usually observed several hours after birth, at the natural situation of the anus, caused by the pressure of the accumulated meconium and gas against the occluding membrane. It may also be easily distinguished too, by the yielding of the prominence to the pressure of the fingers, and then projecting again when the pressure is removed; by the tumor becoming larger, firmer and more apparent whenever the child cries, struggles, or makes efforts to expel the contents of the bowels; by a fluctuation more or less evident, as well as a cavity which can be distinctly felt under the occluding membrane; and lastly by a bluish or livid spot, usually in the centre of the prominence, indicating clearly the position of the anus. Fabricius ab Aquapendente in describing the same deformity says: “*Etsi ani locus pellicula abductus est*

tamen orificii vestigium et tangentibus persentitur vacuum intus." (*Opera Chirurgica, part 1. Cap. 88. Patav. 1617, Folia.*)

3. This species of malformation is the most simple form of arrested development pertaining to the anus, and it is doubtless the most frequent, yet if the number of cases on record are to be taken as evidence of this fact, it fails entirely to establish it, for there are indeed but few cases reported.

S E C T I O N I I.

TREATMENT.

1. The anus and the rectum, in this species of malformation are most always well formed, including the sphinctores ani muscles, the only imperfection being the membranous closure of the anal orifice; consequently the surgical measures recommended for the relief of this impediment are simple and uniformly successful, if timely adopted.

2. The treatment consists of a puncture and a crucial incision. The straight sharp-pointed bistoury should first be plunged into the most prominent part of the tumor, in the direction of the rectum, through the occluding membrane to the seat of the meconium; or into the presumed centre of the anus indicated most always by the livid spot. This puncture will afford an exit to the contents of the intestine, and by their evacuation the most urgent symptoms will at once be relieved. The puncture thus made should then be sufficiently enlarged in the antero-posterior and transverse direction with the probe-pointed bistoury, cutting the membrane from within outwards; and if it be very thick the angles of the flaps formed by the crucial incision should be seized with the forceps and excised with the curved cissors.

After the complete evacuation of the distended rectum by warm enemata, a tent or mèche of lint spread with simple cerate, or dipped in olive oil should be introduced into the opening and renewed from time to time until complete cicatrization has taken place. It is scarcely ever necessary to use the bougie in these cases, and even the mèche of lint may often be dispensed with, after the sixth or seventh day, as there is generally no disposition in the parts to contract too much, especially if the membrane has been thin, and the anus well formed as is usually the case.

3. Professor Hays, of Philadelphia, the very able and distinguished editor of the "American Journal of the Medical Sciences," advises the operation to be performed at the moment when the infant makes efforts to expel the contents of the rectum, and the membrane is most tense. He thinks it wholly unnecessary to cut off the angles of the membrane formed by the crucial incision, as they soon retract towards their base and become confounded with the margin of the anus. (*American Cyclopaedia of Practical Medicine and Surgery. Vol. II. Article, Imperforate Anus, p. 151, Phil. : 1841.*)

4. Professor Pancoast, of Philadelphia, in his invaluable treatise on "Operative Surgery," says that the employment of bougies, or of catheters, after the operation of opening the anal orifice, for the purpose of keeping open the passage, or enlarging it, is not unattended with danger, in consequence of the soft and delicate organization of the mucous membrane of the rectum, at this early age—hence he recommends that the newly made opening should be preserved patulous by the daily introduction of the finger previously oiled. (*Operative Surgery, p. 296. Phil. : 1844.*)

5. M. Levret recommended, in these cases of anal occlusion, circumscribing the obstructing membrane by a circular incision. This operation, however, is never practised.

SECTION III.

CASES AND REMARKS.

CASE XIII.—In February, 1840, I was sent for in haste by Mr. H—— of Bourbon County, Kentucky, at the request of the attending midwife, Mrs. S—— to see his child, a stout, healthy boy, forty-eight hours old. It appeared that in consequence of the feeble condition of Mrs. H——, who required a great deal of attention, that the child had been neglected, and the discovery had just been made, that it had not passed anything from its bowels since its birth, and that it really had no anal opening. Upon examination I found the anal orifice completely occluded by a tolerably thick brownish membrane, surrounded by considerable puckering of the adjacent integument. The obstructing membrane was distended by the meconium and formed a soft projecting tumor as large as a filbert. The child was continually vomiting the milk as fast as taken into the stomach, and its abdomen was slightly swelled and tense. It was perfect in other respects, and urinated freely. The child was properly placed upon its back on the lap of the midwife who held it firmly with its thighs elevated and nates separated, whilst I plunged a sharp-pointed bistoury into the centre of the projection, through which opening the contents of the bowels were at once discharged. I then with a probe-pointed bistoury enlarged the opening by incising the membrane from within, outwards and crucially; the angles of the flaps thus formed were seized with the forceps and excised with a curved scissors. A tent of lint dipped in olive oil was now introduced into the newly made orifice and frequently removed afterwards, and replaced by a new one, until the cure was complete, which took place in less than three weeks. To my surprise, considerable haemorrhage occurred, but not sufficient to cause any bad result. In this case the occluding membrane was of a dark brownish color, quite elastic and about two lines in thickness. I saw this boy in 1854, when he had attained his fourteenth year, and he had as well formed an anus as could be desired.

CASE XIV.—Gunning S. Bedford, M. D., the able and distinguished Professor of Obstetrics and the Diseases of Women and Children in the Medical Department of the University of the City of New York, mentions a case of occlusion of the anal aperture. A male child one week old was brought to the Professor's *Clinique*, apparently in great agony, not having had anything to pass its bowels since its birth, refusing

the breast and constantly moaning. I prefer presenting a part of this case in the imitable style of the professor himself.

"That is not your child, madam—is it? No sir; its mother is too weak to come out. So I should think, my good woman. That little infant is rather young to be brought here. Yes Sir; I know it is, but the poor little dear suffers so much that its mother begged me to let you see it. Well, madam, we will do what we can for it. Are you certain that it has not had a passage since its birth? Oh yes Sir—I know it has not. Does it pass its water? Yes Sir. Have you given it any medicine? Indeed, Sir, it has taken all sorts of things. What has it taken, madam? Molasses and water, and eastor oil and rhubarb, and—There my good woman, that will do. Why, Sir, I have not told you half. You have told me sufficient to satisfy my mind that the poor little infant, young as it is, has passed through a martyrdom! Does that child vomit? Oh yes, sir; for the last four days it could not keep anything on its stomach. Is its little belly large? Oh yes, Sir; it is very much swelled. Has it been attended by a dootor? Yes, sir; and he said the child's bowels had the torpids. You mean torpor, do you not, madam? Well, Sir; it was something that way. I think we shall disover, my good wounan, that the torpor was in the doctor's brain."

Upon examination the professor found a complete occlusion of the child's anus, which at once accounted for the non evauation of its bowels.

"Madam, it is not necessary for me to tell you that this child is in a very dangerous situation. Oh, no Sir; I see it, poor little dear. There is but one thing, my good woman, that presents the slightest ground of relief, and that is an operation. What, Sir; to open its stomach? No madam, we do not open stomachs here—and you need have no fear of the operation of whieh I speak. Shall I do what I think is proper, and which, in fact, is the only thing that can be done? Yes, Sir; I am sure the poor babe's mother will consent to anything. What I propose doing, gentlemen, is to divide by a simple incision, the membrane which you perceive has caused an imperforation of the anus."

The child was placed on its back, the thighs elevated by an assistant, and the occlusion being well exposed, the Professor with a bistoury, made the incision; and immediately a large quantity of meconium passed from the bowels; the tumefaction of the abdomen became very much diminished, and the infant's countenance gave evidence of relief.

"In order, gentlemen, that the incision I have made may

be kept open, it will be necessary for a day or two to introduce into it a small pledget of lint, well smeared with simple cerate ; and it will also be proper to throw up the bowel two wine-glasses of tepid water this evening, with a view of promoting a free evacuation."

In a subsequent lecture the Professor alludes to the same case again :

" You will scarcely recognise, gentlemen, in this infant, the little sufferer brought here some time since apparently in a moribund condition. To be frank with you, I am surprised to see it alive. This is the infant, you will remember, with imperforate anus, on which I operated when it was about a week old. At the time when I performed the operation, I very distinctly mentioned that such was the low condition of the infant, I could make no assurance of a successful issue. I am now agreeably disappointed, and this recovery affords another evidence of the extraordinary tenacity of life." (*Clinical Lectures on Diseases of Woman and Children.* 5th Ed. pp. 295, 325. New York : 1857.)

CASE XV.—Mr. Hutchison relates a case of this species : " A male child one day old was brought to the Westminster General Dispensary by the attending midwife ; and as the gut visibly caused a protrusion of the parts, when gentle titillation was made over the situation where the anus should have been, which was marked, the point of a lancet was introduced about the eighth of an inch or upwards, which entered the gut, and was sufficient to liberate the contained meconium. This opening was afterwards enlarged with a bistoury ; a small piece of lint dipped in oil was now introduced, to prevent the sides of the incised wound from again uniting ; and the infant was discharged cured in about three weeks, with a well-formed anus." (*Op. cit. p. 264.*)

CASE XVI.—The following case of simple occlusion of the anal orifice was reported to the " Suffolk District Medical Society of Massachusetts," by E. B. Moore, M.D.

" A male child was born on the 22d of Nov. 1853. Where the anal opening should have been, there existed a sac projecting three-fourths of an inch from the body of the child. Dr. Moore operated three days after birth with a trocar, and afterwards dilated the opening by bougies, beginning with one the size of a pipe-stem, and gradually increasing the size until one three-fourths of an inch in diameter could be passed. December 3d, eight days after the operation, the child was dismissed as cured. He has been generally, and is now,

(1857) well and hearty." (*Boston Medical and Surgical Journal*, Vol. L VII. p. 510. *Boston*, 1858.)

CASE XVII.—M. Billard reports the following case of simple imperforation of the anus. This child would doubtless have been saved by the operation, had it not been for the *gastro-enteritis*.

"Grenel, aged two days, entered by the *Crèche* [the name given to the apartment, in which infants are deposited when first brought to the hospital] on the ninth of March. This child had passed no meconium since birth; the abdomen was tumid and very painful, for the child cried and the face became pinched whenever the abdomen was touched. The course of the colon could be felt through the parietes of the abdomen. He vomited green substances; the cry was feeble; skin cold; and the circulation very slow. The anus was imperforate, although there existed the appearance of its orifice in the perinæum. I passed through a sharp-pointed bistoury, being careful to turn the back towards the bladder, and after having made the incision, I enlarged it in a backward direction. A large quantity of meconium immediately issued from the opening; the swelling of the abdomen at once subsided, and the pains apparently ceased, for the child stopped crying, and the face no longer exhibited the expression of pain. He was immersed for half an hour in a bath of marshmallows; but notwithstanding all these precautions, the vomiting continued, and he died at night.

"The autopsy: On examining the body, a passive congestion of the pharynx was found, and on the mucous membrane of the stomach several patches of a vivid red, together with a universal redness and tunefaction of the inner membrane of the small intestines; the muciparous follicles were very numerous in the large intestines; the circumference of each of these follicles was surrounded by a red circle; the rectum was continued to the perinæum, where it was only closed by a simple membrane. A large quantity of meconium was found in the large intestines. The remainder of the intestinal tube contained some yellow adhesive matters. The circulatory and cerebral systems were healthy." (*A Treatise on the Diseases of Infants. Stewart's English Version.* p. 281. *New York*, 1839.)

CASES XVIII.—XIX.—Mr. Howship reports the two following cases of simple imperforation of the anus.

First Case.—“S. P., a woman aged twenty-six years, was frightened in the eighth month of her pregnancy, by a rat

leaping repeatedly at her. Her alarm was considerable, but she recovered, and went her full time. In the birth the infant was observed to have a large belly.

"On the second day after the child was born, the nurse observing there had been no appearance of stool, examined more particularly, and found there was no passage. The infant was therefore taken to a medical person in the neighborhood, who with a lancet divided the integument that covered the end of the intestine. Meconium immediately appeared, and in due time faecal matter.

"The evacuations from the bowels were always very thin, nearly black and extremely offensive. The discharge did not appear at intervals, as in common, but continually oozed out upon the napkins, showing there was no power of retention in the parts.

"In six months the child was again taken to the person who had punctured the intestine. The mother said that she was sure the passage was not sufficiently free. The surgeon, however, was of a different opinion, insisted upon it, 'that everything was right,' and giving a powder for the infant, sent her away.

"When the child was able to run alone, it was still necessary to keep a napkin constantly upon him. The stools passed without his knowledge, he was well enough aware of it afterwards, but although naturally a sharp boy, he never was conscious of it at the moment of its taking place.

"His belly continued to enlarge, and when a year and a half old, it had formed a very large tumor, but unattended with any apparent inconvenience. The appetite was so excessive, that it amounted to a constant and unnatural craving for food. He was perpetually observed to pick up, and eat whatever might be lying near him upon the ground, small bits of stick or broom straws, plum, or fruit stones, &c. He seemed never to be satisfied, but would eat heartily, every hour through the day, nor did anything appear to disagree with him.

"He had been seen by several medical gentlemen, none of whom were satisfied as to the particular nature of his complaint. There was, indeed, a very large tumor in the abdomen, but no sensation like that conveyed by a collection of water; nor any hardness, or particular sensibility about the region of the liver, to warrant any suspicion of hepatic disease.

"When two years old, the child was still suckling. The mother, from his peculiar state of health, considered he was not strong enough to be weaned. About this time he had

been out, and made some complaint of uneasiness and pain in his belly, and on returning home, lay down in the cradle, still uneasy. The following day he was worse, with a hot and dry skin, white tongue, thirst and extreme restlessness. There was now a constant and most distressing sense of uneasiness in the belly. In the night he would creep to the edge of the cradle, and partly out, he would hang over, resting his hands on the floor, while the abdomen was pressed by the edge of the cradle. This posture appeared to give him partial relief."

"The fever and general irritation continued to increase daily to his death, which took place six days subsequent to the commencement of the attack."

"Post-Mortem Examination."—The abdomen was exceedingly enlarged. On cutting into the cavity, a soft, white, elastic tumor was found. This tumor, traced by its connections, proved to be the lower part of the intestine rectum. The stomach and small intestines were healthy, but the whole of the great intestine was enlarged to at least double its natural size.

"Just where the rectum commences, the coats of the intestine were suddenly expauded, forming a great oval pouch, or bag, sufficiently large to contain three pints of fluid. The structure of this bag was more dense and strong than that of the intestine in its natural state.

"The contents of this bag were a very large quantity of fruit stones, with bits of stick, straws and dirt; together with a large collected mass of fluid, dark faecal matter, with which the whole of the colon was more or less filled, as well as the large sac that contained the stones.

"The enlargement of the rectum had extended itself quite down to the anus, so that to remove the tumor entire, it became necessary to dissect out part of the integuments which formed the artifical anus. The latter opening was found to be so confined, that it was with difficulty a bougie of middle size could be pushed through it. This opening consequently could give passage only to the thinnest kind of faecal matter." (*Practical Observations in Surgery and Morbid Anatomy.* p. 317. London : 1816.)

Second Case.—"A medical friend, Dr. Samuel Merriam," says Mr. Howship, "to whom I mentioned the above case, acquainted me, that he had seen an instance, which he believed to be of a very similar nature with the preceeding one. A child was born with imperforate anus, and an enlarged abdomen. The integuments were punctured with a trocar,

the meconium first appeared, and faecal matter subsequently. It was intended in this instance, to have formed an enlarged and adequate orifice by the use of bougies, or such other means as might have been necessary ; but the mother, both ignorant and obstinate, was not to be prevailed upon to allow any thing more being done on the child's behalf. The infant went on tolerably well for about six months, although the enlargement of the abdomen continued to increase. He subsequently became poorly, and died. The body was not examined." (*Loc. cit. p. 320.*)

CASES XX. — XXI.—M. Dupareque records two cases of this species of malformation upon which he operated.

The first case was that of a child which had not passed meconium for thirty-six hours after birth. M. Dupareque having ascertained that there was imperforation of the anus, opened it with great success. (*Revue Médicale de Paris. Mai, 1835. p. 284.*)

M. Dupareque's second case was a child to which he was called in consultation, and which for thirty hours after birth had passed no meconium. M. Duparque having ascertained that there was imperforation of the anus, successfully performed the operation with a strait and narrow bistoury. A gum-elastic canula was placed in the rectum. Twelve or fifteen hours afterwards, all the signs of effusion of the abdomen manifested themselves, and the child succumbed. At the autopsy the rectum was found to be softened and punctured at the point of union with the sigmoid flexure of the colon. This accident was produced by the gum-elastic canula, which from carelessness by the nurse had been too far advanced, and kept too long in. (*Loc. cit. p. 285.*)

This case should be a warning to both surgeons and nurses how they use canulas and bougies. In my opinion, the canula was by no means indicated in this instance, and should not have been used. Soft tents with the occasional use of the little finger were all that were required to keep the passage patent. Several cases in which similar accidents have occurred from the careless manner of using canulas and bougies will be found recorded elsewhere in this work.

CASE XXII.—M. Petit reports, with several others, the case of a child presenting an imperforate anus, in which no sign of such an organ was visible. On the third day the

membrane closing the anus, which was both thick and firm, was incised by him with a lancet. The meconium passed, but the child died in convulsions. (*Mémoire de l'Académie Royale de Chirurgie de Paris. tome II. p. 237. 1781.*)

CASE XXIII.—M. Petit on another occasion witnessed a new-born child which was destitute of an anus, or any sign of one. He first attempted to incise the membrane which covered the anus, with a lancet, but failed. He then employed a troear, when the meconium passed out freely; nevertheless, the infant died on the following day. (*op. cit.*)

CASE XXIV.—M. Saviard, who was, at the time, chief surgeon of the Hospital Hotel Dieu, in Paris, relates a case of simple occlusion of the anal orifice.

“On the 16th of November, 1693, an infant four days old was brought to the Hotel Dieu, whose anus was closed. Saviard examined the place where the natural aperture ought to have been, and perceived a membrane extended across it, through which he could distinguish the meconium by its dark color. He incised this membrane with a strait sharp-pointed bistrony, which afforded a passage to the contents of the bowels. After this he dressed the wound three days with a tent dipped in digestive to prevent its reunion, and the child was cured.” (*Nouveau Recueil d'Observations Chirurgicales. Obs. III. Paris: 1702.*)

CASE XXV.—The following account of a case of monstrosity, having a closure of both ears, an imperforate anus, and a double fissure of the palate, was received from W. Otis Johnson, M. D., of Cambridge, Mass., and read to the *Boston Society for Medical Improvement*, July 12th, 1858, by Jeffries Wyman, M. D., who also showed casts of the ears.

“On the 16th of June, 1858, I was called early in the afternoon to Mrs. F., an intelligent woman, wife of a respectable American mechanic. In half an hour she was easily delivered of her third child. The first is living and is an unusually handsome girl of about five years; the second died before the family came to Cambridge. Mrs. F. had previously told me that she had continued to nurse her second child *three months* after her last conception, which of course, there is reason to doubt. She considered her ‘time’ as at hand.

“The ‘monster’ gave no signs of life for more than a minute after birth, and was what is professionally called *blue*. The cord was about the neck. In about fifteen minutes after

birth, having in the mean time made but a few faint cries, he gave out some half a dozen of the most unearthly shrieks for an infant I ever heard. These were repeated some eighteen hours afterwards.

"I found the ears closed and undeveloped, as your casts will show; a double fissure of the palate, and an imperforate anus. The *ensemble* of the features was idiotic; the remaining development was perfect, and seemed to be that of a six months' or six and a half months' foetus.

"Thirty-six hours after birth, a film, of apparently mucous membrane protruded from the anal fissure, and, after reaching the size of about half an inch in diameter, burst, and meconium escaped.

"The child continued to show an increasing vitality till about the thirtieth hour after birth, from which time it began to sink, and died easily, forty-five hours after birth." (*Records of the Boston Society for Medical Improvement. Vol. III. p. 244. Boston: 1859.*)

CASE XXVI.—Ruysch saw a child whose anus was closed by a membrane. On the fifth day after its birth there was a spontaneous rupture of the occluding membrane and death soon followed. (*Adversaria Anatomica, decad. II. Cap. 10, p. 43.*)

CASE XXVII.—Von Ammon reports the case of a male child in whom there existed an imperforation of the anus by a simple membrane which he at once incised. In this instance there was quite a depression at the natural situation of the anus, and what was remarkable, the penis was in a constant state of priapism which continued until after the operation of incising the occluding membrane, and the complete evacuation of the rectum.

This child was well formed in other respects and lived four months after the operation, the anus and the rectum performing their functions admirably, the sphinctores ani being present and well formed. The child died of a scrofulous diarrhoea. (*Die Angeborenen Chirurgischen Krankheiten Des Menschen. S. 41. Berlin, 1842.*) [Vide Plate. III.]

The following authors have also seen and described cases of this peculiar species of malformation.

Fabricius of Hildanus. (*Observationum Chirurgicarum Centuria. Cent. 1. Obser. 73, p. 54. Basil, 1606. Folia.*)

Fabricius ab Aquapendente. (*Op. cit.*)

Van Meeckren. (*Observationes Medico-Chirurgicae. cap. XXIV. p. 114. Amstelod, 1682. 8vo.*)

Littré. (*Histoire de l'Académie Royale des Sciences, année 1710, p. 47.*)

Wagner. (*Commer, litterar. Norimberg, p. 364, année 1735.*)

Motais. (*Memoires de l'Académie des Sciences, année 1771, p. 579.*)

CHAPTER IV.

THE THIRD SPECIES OF MALFORMATION.

S E C T I O N I.

DESCRIPTION.

Atresia Ani et Intestini Recti. In this species of arrested development the rectum does not descend as low in the pelvis as it should, but terminates abruptly in some form of cul-de-sac, at a variable distance above its natural outlet, and either hangs loosely in the pelvic cavity, or adheres to the anterior surface of the sacrum, or to the bladder, or to some contiguous part. No anus exists, and there is generally not even the trace of an anus to be observed *in situ naturali*, the perinæal raphé being extended from the scrotum to the point of the coccyx without interruption. [Vide Plate IV., Fig. 1.] The space which should have been occupied by the anus and the absent portion of the inferior extremity of the rectum, is filled with some intermediate substance of a cellulo-fibrous nature.

This is truly a deplorable form of congenital imperfection, especially should a considerable portion of the inferior extremity of the rectum be deficient; then indeed the case becomes most serious and embarrassing to the surgeon, as there are no external signs by which he can ascertain positively where the end of the rectum can be found, or, indeed, whether the organ even exists at all or not; and to add further to the perplexity and the difficulty, the rectum, besides being abnormal, sometimes occupies an abnormal position. In all these respects, it will be observed that this species dif-

fers most widely from the second species, in which a swelling, a fluctuating tumor, or an accompanying projection or depression in the natural situation of the anus, indicates the existence and the position of the rectum, and directs the surgeon at once where to find it.

From the number of cases of this species which are recorded, and which I have presented, it might be inferred, that it is much more common than the first and second species; but this would by no means be a rational conclusion, inasmuch as such cases scarcely ever escape notice, and are doubtless every one of them reported, both on account of their formidable, as well as their peculiar character.

S E C T I O N I I .

PHYSICAL EXPLORATION—DIAGNOSIS.

In these cases, in which there is no external indication whatever of either an anus or a rectum, it is of the utmost importance to success, that a minute and careful exploration should be made as a preliminary step to the treatment.

The index finger of the right hand should be placed in the normal position of the anus, and pushed firmly up towards the pelvic cavity in the direction of the rectum, whilst, at the same time, with the left hand firm pressure upon the anterior walls of the abdomen, should be made, both inward and downward towards the finger in perinæo. In this manner the approach of the rectum towards the index finger, may be detected if it exists.

Sometimes by the finger alone in the perinæum the fluctuation of the distended end of the rectum can be detected, should it not be too far distant.

After having made an incision of the proper depth in the di-

rection of the rectum, without disovering the end of it, the index finger of one hand should be introduced to the bottom of the incision, whilst with the other hand, or the hands of an assistant placed upon the anterior walls of the abdomen, the intestines should be pressed down into the pelvic cavity. In this manner, if the rectum exists, it might be detected by the finger in the wound.

In these cases auscultation and percussion may also be used, in order to discover the presence or absence of the rectum. The stethoscope should be applied to the perineum, and at the same time percussion should be made upon the walls of the abdomen. By these means the presence of the rectal extremity filled with gas and faecal matter may be discovered.

In arriving at a correct diagnosis in these obscure cases, considerable aid will be afforded by the introduction of the sound into the bladder, if possible, or into the vagina. Through these media much may be discovered in relation to the existence and the exact locality of the blind sac of the rectum.

Mr. A. Copeland Hutchison recommends in these cases, gentle titillation of the skin with the finger, over the natural situation of the anus, which, he says, invariably causes the child to strain, or make efforts to evacuate its bowels, and thereby produces a protrusion of this part, if the rectum is distended with meconium, which will be conspicuous, or felt in proportion to the contiguity of the intestine to the external surface; unless indeed the rectum terminates quite high up, then there will be no protrusion whatever, and no fluctuation felt. (*Op. cit.*, p. 259.)

In some of the cases of congenital imperfection of the anus and the rectum, especially in the peculiar species under consideration, there is sometimes found a small exerecence or elevation of the skin in the form of a button, or of a crest, as will be observed in several of the cases I have reported. These exerecesses, from their peculiar conformation, might at

first sight, be regarded by a superficial observer as indicative of an anus, and also lead to the supposition that the rectum would be found in their immediate vicinity; but such would not be the case, as they are altogether cutaneous in their structure, and have no connection or communication whatever with the blind end of the rectum which in these instances is generally quite remote from them.

Sometimes a small depression or a pit, or a fissure or fissures of the skin exist at the place of the absent anus. Some examples of this kind will also be found reported.

S E C T I O N I I I.

PROGNOSIS.

It has been a source of much regret that the treatment heretofore, of those cases, in which there is an absence of from one and a half, to two and a half inches of the inferior extremity of the rectum, has not been crowned with more success. When, however, the serious and sometimes almost desperate character of such cases is taken into consideration, as well as the many difficulties attending the old and imperfect methods of operating, the numerous failures heretofore, have nothing in them to cause surprise. One can well imagine the gravity of such an operation, and how difficult a thing it would be, even after having found and opened the end of the rectum, to establish permanently a canal in so soft and porous or spongy a substance as the peculiar tissue which in these cases fills the whole space which the intestine itself should naturally occupy, and through which the artificial canal would necessarily have to pass, and how very inadequate such tissue would be as a substitute for the muscular rectum. The difficulties, therefore, enumerated by Bell, Velpeau and

others, of keeping such a canal patulous, are by no means exaggerated or imaginary. These various considerations have induced many surgeons to look upon all such cases as entirely hopeless, considering the operation for their relief to be too grave and uncertain, and more hazardous and injurious than beneficial—hence they repudiate it altogether. Dr. J. H. Bigelow, Professor of Surgery in the Massachusetts Medical College of Harvard University, says that—“Judging from results, I do not consider the operation for imperforate rectum, or even for imperforate anus, a desirable one. I believe that in the present state of the art, it is better that a child born with either of these imperfections, should die without this operation; although it must occasionally be performed in deference to established opinion.” (*Boston Medical and Surgical Journal*, Vol. L VII., p. 240. Boston: 1858.)

I am surprised that so able a surgeon as Dr. Bigelow should have given this as his deliberate judgment; that such doctrine, so directly contrary to the genius of this age of real progress should have emanated from so high a source as the chair of surgery in the Medical Department of Old Harvard University. Should the sentiments of Dr. Bigelow be strictly and universally adopted, when, I ask him, would the “present state of the art” arrive at that degree of perfection which would justify the operation? Such views, if carried out to their legitimate consequences, would for ever close all the avenues to future improvement in the art, and be the burial ground of all further progress. Admit for the sake of argument, that the operation heretofore has utterly failed in every instance; what then? Are we on this account to abandon all such cases to their fate, in future? Are we to sit down, fold our hands, quietly look on, and not make another earnest and intelligent effort to save such? Dr. Bigelow, however, says that this operation must occasionally be performed *in deference to established opinion*. Can it be possible that Dr. Bigelow, through mere regard for established opinion would,

under any circumstance, perform or advise an operation in which he had no confidence whatever, and which he believed would confer nothing, at best, but a lingering miserable death on the unfortunate little patient ?

I admit that the results of the operation heretofore, have, in a majority of instances been unfortunate, but a much larger number of cases have been saved by it, than is generally supposed ; and many of the fears of surgeons with regard to it, are ill founded and greatly exaggerated, as well as are their denunciations of it, unjust. Notwithstanding this proscription of the operation by several eminent surgeons, it is nevertheless sufficiently justified, even admitting the uncertainty and the danger attending it, by the success of a number of cases of a most desperate character, which will be found recorded in full in this chapter. The highly encouraging results in these cases, authorise and warrant an attempt at relief by some operation. An operation may not be followed by the desired result, still an attempt should be made, unless there should be other complications or conditions of the system that would contra-indicate it. A very favorable issue, however, of the success of the operation in any of these cases must not be too confidently prognosticated.

Some surgeons denounce the operation as being a cruel, a most barbarous proceeding, and on this account decline altogether to perform it. I would most respectfully refer all such to the reports of several cases given in this chapter, in which the little dying patients were so astonishingly relieved by the operation, that they immediately after nursed vigorously, slept most tranquilly, and ultimately recovered.

The disrepute into which the treatment of such cases heretofore has fallen, may be in a great measure justly attributable to ignorance of the anatomical and pathological conditions and relations that pertain to these cases ; to the want of skill in the operator ; to an imperfect method of operation ; to the operation being contra-indicated, &c.

The treatment laid down and recommended in this chapter, if perseveringly carried out with judgment, caution and tact, will, in my opinion, in the majority of cases, if not in all, not only preserve the life of the child, but also prevent those sad consequences which so often unfortunately attended the treatment heretofore pursued.

The celebrated French surgeons, MM. Amussat, Roux de Brignoles and Goyrand, in their various publications on this subject, during the years 1834 and 1835, declared that previous to that time, such cases as we are now considering, were never successfully treated, if treated at all, but were suffered to perish, because, as they imagined, their predecessors had not sufficient skill and courage to make free incisions in the perineum, in order to search for, and to find the blind end of the rectum, when it laid deep. They claimed great merit to themselves for introducing as something entirely new in such cases, free incisions with a scalpel guided by the finger, instead of the old method of punctures with the lancet or the trocar.

Although these gentlemen deserved great credit for calling public attention to this entirely neglected, but most important subject, at that time, and for introducing several valuable improvements in the mode of operating, they nevertheless were egregiously mistaken in supposing that no bad cases of this kind were ever previously treated with success, and that they had the honor of first suggesting and putting into practice the method by dissection with a scalpel guided by the finger. The evidence that will be adduced in this chapter will place this matter beyond all controversy. It will establish the fact that such cases, even of the most desperate character, were sometimes successfully treated both by dissection as well as by puncture, for years previous to the promulgation of the views of these gentlemen, and that they were by no means the originators of the method by dissection.

Benjamin Bell more than half a century previous, not only taught, but successfully performed dissection in just such

cases. His directions for the performance of this operation, I will give in his own language.—“In such cases,” says he, “when the gut is found to lie deep, on the child being properly secured, an incision of an inch in length should be made directly on the spot where the anus ought to be; and this should be continued by gradual and repeated strokes of the sealpel, in the direction the reetum is usually known to take; not in a direct course through the axis of the pelvis; for in that direetion the vagina or bladder or perhaps both might be brought to suffer; but backwards and along the coccyx, where there is no risk of wounding any part of importance. The best director in every case of this kind, is the finger of the operator. The fore finger of one hand being pushed in towards the coccyx, the surgeon with the sealpel in the other, should dissect gradually in this direction, either till he meets with faeces, or till the sealpel has reached at least the full length of his finger; and if after all the faees are not evacuated, as death must undoubtedly ensue if something further be not attempted, a long troear should be pushed forward upon the finger in such a direction as the operator thinks will most probably meet with the gut.”—(*A System of Surgery. Vol. II. Chap. XIX. p. 277. Edinburgh: 1787.*)

These were the graphic instructions of Mr. Bell, and he himself put them into successful execuation in two formidable cases. [Vide Cases XXX.—XXXI.]

This operation too was successfully performed in the year 1822, by the late and distinguished Mr. A. Copeland Hutchinson, of England, whom I have already favorably noticed. The case upon which he operated was one among the worst on record, and the operation did not differ essentially from that recommended by Mr. Bell. I have reported the case in full. [Vide Case XXXVI.]

A formidable ease was successfully treated in the year 1800, now sixty years ago, in our own country, and in the then wilds of my own adopted State—Kentucky. I feel proud to

inform those distinguished French surgeons, that even at that distant day, and in the wild woods of Kentucky, a surgeon was found who possessed both the ability and the courage to execute successfully such a difficult and dangerous operation. That surgeon was Dr. John P. Campbell, of Flemingsburg, Kentucky. This case of Dr. Campbell will be found reported in full. [*Vide Case XXXV.*]

S E C T I O N I V .

THE TREATMENT.

THE treatment which holds out the greatest prospect of success in these cases, is that which contemplates the establishment of an artificial anus in the perinæum—*Proctoplasty*. By this operation the cul-de-sac of the rectum is sought for, through a passage made for this purpose by dissecting through the tissues which separate it from the cutaneous surface; and when found of breaking up its adhesions, if any, seizing it with forceps, bringing it down, opening it, emptying its contents, and uniting its cut edges to those of the perinæal wound in the natural situation of the anus, according to the method of M. Amussat. If the blind sac of the rectum, however, cannot be brought down without undue force, in consequence of the organ being too short, or its adhesions being too numerous and strong, it must be opened where it is, by a crucial incision, and the passage which has been made to it, must be kept open and supply and perform the functions of that portion of the rectum which is wanting, according to the ordinary method.

1. *When should the Operation be Undertaken?* Mr. A. Cope-land Hutchison advises in obscure cases of this character—that is, in cases in which it is very difficult to determine from

present indications where the blind sac of the rectum is, or whether this organ exists at all or not—to postpone the operation, if possible, for twenty-four, or sixty hours after birth, as no inconvenience will generally arise from the delay; the distention of the rectum by the meconium and faecal matter will be in the mean time, a most invaluable guide to the surgeon in making his incisions, and in searching for the cul-de-sac of the rectum. (*Op. cit. p. 257.*)

Professor Dieffenbach recommends the operation to be performed on the second day after the birth of the child, for the same reasons. (*Die Operative Chirurgie. Band 1. S. 672. Leipzig: 1845.*)

Although the delay advised by these authors is of much importance in facilitating the operation, and the search for the rectum, yet it is very liable to be abused, by being carried too far, for it is by no means as void of danger as they imagine. The primary object in such cases is to empty as soon as possible the distended intestines—lest they become inflamed, paralysed or ulcerated, and thus jeopard the life of the child. When the operation has been delayed too long, the difficulty after its performance often is, that the bowels will not act at all, having completely lost their peristaltic action by having remained too long loaded and stretched with meconium and gas, and the child generally dies in a day or two. I am of the opinion that the operation should be performed as soon as the child manifests its sufferings, by its cries or moans, and the agitation of its limbs, or its general restlessness; or at least it ought not to be postponed longer than when free vomiting has taken place, because then the distention of the rectum by the meconium and the gas, which is so important in the search for the blind end of that organ, is sufficient for the purpose.

The practice of administering purgatives for the purpose of forcing down the rectum, preparatory to the operation, cannot be too strongly reprobated.

2. *The Infant Pelvis.* Some idea may be formed of the average dimensions of the infant pelvis in the normal state, by the following admeasurements I made of it in two new-born, well-developed male infants, at full time :

- | | |
|----|--|
| 1. | From one tuberosity of the ischium to the other—one inch and one line. |
| | From the os coccygis to the symphysis pubis—one inch and three lines. |
| | From the os coccygis to the promontory of the sacrum—one inch and two lines. |
| 2. | From one tuberosity of the ischium to the other—one inch. |
| | From the os coccygis to the symphysis pubis—one inch and one and a half lines. |
| | From the os coccygis to the promontory of the sacrum—one inch and one line. |

In the instances in which the rectum is either partially or wholly absent, the pelvis is generally of smaller capacity than when normal, having also undergone to some extent an arrest of development, and being deformed to a greater or less degree. The tuberosities of the ischium approach nearer each other, in consequence of the narrowness of the pelvic cavity common in these cases.

Deep incisions into the infant pelvis, are, as a matter of course, always attended with more or less difficulty and danger. This of necessity must be so in such cases, on account of the small size of the pelvis as a theatre for such an operation, especially when we take into consideration the presence of the important viscera which still further lessens its diameters, and the close proximity of the iliac and hypogastric arteries and veins which endanger the dissection in the search for the rectum.

3. *Introduction of the Sound.* Some surgeons, previous to performing the operation, recommend the introduction of a small silver sound or catheter into the bladder of the male, and a large metallic sound slightly curved, into the vagina of the female, to determine the direction and the position of these organs, in order to guard against wounding them. The first proceeding is difficult and sometimes impossible to accomplish, and neither of them, in my opinion, absolutely necessary, provided the operation is cautiously conducted. I admit that the sound might considerably facilitate the search for the rectum along the anterior wall of the pelvis, which sometimes becomes necessary when the organ occupies an abnormal position.

4. *The Form of Incision.* In the operation for perineal artificial anus, surgeons have severally recommended the *longitudinal*, the *transverse*, the *crucial*, and the *T* incision.

The longitudinal incision should, in my opinion, have the preference, because by it a larger wound may be obtained without danger, which sometimes becomes necessary in making a thorough and extensive search for the rectal extremity. This incision, if necessary, can be extended from the posterior margin of the scrotum, or from the posterior commissure of the labia majora, to the extremity of the coccyx. Another very important consideration is that by it, the cicatricial tissue which results from wounds in the vicinity of the anus is much less extensive than in any of the other incisions, and consequently greatly diminishes the risk of contraction after the operation.

The transverse incision has no advantage whatever over the longitudinal, and should it be carried to the necessary extent, it might approach too near to the tuberosity of the ischium, and run the risk of wounding the internal pudic artery, and seriously injure also the sphincter ani muscles, as the pelvic cavity in these cases, is generally narrower, and the tuberosities of the ischium much nearer each other than natural.

The crucial and the T incision are both objectionable on account of favoring the contraction of the anus by the formation of a greater extent of cicatricial tissue.

Great care should be taken, that whatever incision is adopted, that it be healed by the first intention, as suppuration always results in an increased extent of cicatricial tissue, and thus favors a greater contraction of the newly-formed anus.

5. *The Sphinctores Ani Muscles.* M. Roux de Brignoles advises that the perineal artificial anus should always be established exactly in the mesial line of the sphincter ani muscles, and that in conducting the dissection, the fibres of these muscles should be most carefully separated, and their internal margin loosed, so as to preserve their freedom of action, and secure, what is of the greatest importance, their utility in the act of defecation. (*Archives Générales de Médecine. 2d Ser. tome V. p. 475.*)

This advice of M. Roux is highly important and judicious, and should, as far as practicable, be always followed, in all the cases in which those muscles do really exist. The task, however, of distinguishing and separating these muscular fibres, is by no means so easy to accomplish, as one would suppose from reading the remarks of M. Roux.

M. Velpeau says that this method of Roux has no superiority over the ordinary one; but this is a loose assertion of his, and does not merit much attention.

Upon the subject of the invariable presence or absence of the sphinctores ani muscles in these particular cases of congenital malformation, there is a singular diversity of opinion existing among authors.

M. Roux de Brignoles maintains that these muscles which receive their nutrient arteries from the ischiatic, are never wanting, that they exist independently of the rectum—hence his advice so to conduct the dissection, as to preserve them in

connection with the artificial anus, and thus enable the patient to have control over the retention of the faeces. (*Mémoire de l'Académie Royale de Médecine. tome IV. p. 183. Paris: 1835.*)

M. Blandin, on the contrary however, asserts that when the anus is completely absent, he has ascertained that the sphincter muscle is invariably absent also; this being always the case whether the skin does, or does not present an indication of the natural situation of the anus—hence he advises that the artificial anus should be formed in the abdomen, because an artificial anus in the perinæum, destitute of a sphincter muscle, would occasion incontinence of faeces to a greater extent, and be attended with more inconvenience and discomfort, than one established in the abdomen. (*Dictionnaire de Médecine et de Chirurgie Pratiques. Paris: 1832.*)

Tüngel, a late and very able German writer on abdominal artificial anus, considers the absence of the sphinctores and levatores ani muscles as a rule in congenital imperforation of the anus and the rectum; and uses this as a strong argument against a perineal artificial anus, and in favor of an abdominal one. (*Über Künstliche Afterbildung. S. 203. Kiel: 1853.*)

M. Velpeau is also of opinion that the sphincter muscle in all such cases is always absent. (*Operative Surgery. Vol. III. p. 1090. Mott's English Version. New York: 1847.*)

M. Goyrand mentions it as an undeviating rule that the superior portion of the sphincter ani is always absent when the inferior portion of the rectum is deficient; but that the inferior portion of this muscle, not only always exists, but is preternaturally developed in these cases—hence he comes to the same practical conclusions that M. Ronx does. (*Journal Hebdomadaire des Progress des Sciences et Institutions Médicales. tome III. p. 245. Paris: 1834.*)

M. Petit observes that in all such cases of imperforate anus, the sphincter ani muscle indeed exists, but it is so contracted,

wasted, and confounded with the surrounding parts, that it is difficult, or rather impossible for it to resume its function, with whatever care the operation may be performed. (*Remarques sur les differens vices de conformations que les enfans apportent en naissant. Mémoire de l'Académie Royale de Chirurgie. tome II. Paris: 1781.*)

Mr. A. Copeland Hutchison mentions a case in which the sphinctores ani were wanting, but the levatores ani were perfect and strong. (*Op. cit. p. 271.*)

The only just and practical conclusions to be drawn from these conflicting opinions, are that, in some of these cases, the sphinctores ani muscles exist, whilst in others they do not; but whether they are present or absent, the artificial anus should always, if possible, be established in the natural situation in the perinæum, for should these muscles be absent, the infirmity is greatly less, even in this depending situation, than Blandin and Tüngel declare. Should these muscles, however, be present, the operation should be so especially conducted, as by all means to preserve their functions to the newly-formed anus as recommended by M. Roux.

I have elsewhere presented in full a highly interesting case successfully operated on by M. Roux. This case will completely illustrate his peculiar and admirable method of operating. [*Vide Case CLXVII.*]

6. *Abnormal Position of the Rectum.* If the cul-de-sac of the rectum should not be found through the incision made to the full extent in the normal direction and position of this intestine, it is still no positive evidence that it does not exist, for as I have elsewhere already observed, that besides being abnormal, the rectum may sometimes occupy an abnormal position in the pelvic cavity—hence the important necessity of varying more or less the search for it before abandoning the case; for continuing the search in the same direction would not only result in a failure to find it, but also,

in the loss of the patient. Instances have occurred in which the surgeon, after searching for the rectum in the natural direction and position of this organ, failed to find it there, and abandoned the case; afterwards at the autopsy he discovered it in another position in the pelvic cavity, from which he might easily have drawn it into the incision he had made in the perinæum, without any difficulty or danger, if during the operation this abnormal position of the rectum had been known or thought of. [*Vide Plate XIV.*]

A number of cases will be found reported in this work, in which the discovery was made at the autopsy, that if the search for the end of the rectum had been varied even in a slight degree from the natural direction of this intestine, it would have been found, and the patient, in all probability, saved. Or if the point of the bistoury or trocar, in the operation of puncture, had been slightly changed in its direction, the end of the rectum would have been penetrated.

It is scarcely necessary to observe that during the operation, the blood, from time to time, should be well sponged out of the wound, the haemorrhage, however, is generally but slight if proper care is taken; and that the dissection should be conducted with as much dispatch as would be compatible with the safety of the child. Infants, however, are found, as I have elsewhere observed, to bear a great deal without any bad results, provided no important vessel or structure is injured.

7. *The Method of Operating.* When the operation is determined on, the little patient should be placed on its back on a table, or on the lap of an assistant, as in the lateral operation for lithotomy, its legs should be flexed and held apart by two assistants, and the nates completely exposed and inclined forward. If the catheter or the sound is decided on being used, it must now be introduced and held by an assistant. The surgeon placing himself in front, should with the thumb and index finger of the left hand, stretch the integuments of the

perinæum, and with the round-bellied scalpel in his right, make a longitudinal incision on the median line through the skin, commencing with the posterior margin of the scrotum, or at the posterior point of the commissure of the labia majora, and extending to the termination of the coccyx, unless he should think that a shorter incision would give him ample room. The lips of the wound now being drawn apart, the operator should deepen the incision in the natural direction of the rectum, by cautiously incising little by little the different layers of the perinæum in succession as they present themselves, exploring well with the index finger of the left hand before each stroke of the scalpel, to ascertain the position of the bladder or the vagina, so as not to wound it, and also to recognize by the projection and the fluctuation, the blind sac of the rectum. The finger is better than either the probe or the sound for this purpose, and it also serves to guide the knife, being the best, if not only director, that should be used in such cases. Extreme care should also be taken to avoid the great pelvic vessels at the sides, and the sacrum behind, lest as it regards the latter, the knife should get behind the rectum, of which it is in search, and miss it altogether, or wound it some distance above its cul-de-sac. After the operator has penetrated as far as the pelvic aponeurosis without meeting the end of the rectum, he should then divide this tissue also, and search for it in the pelvic cavity. The edges of the wound may be kept asunder by crotchet hooks, so that the cavity may be explored both by touch and by sight. The finger can be introduced from two, to two and a half inches in depth, towards the promontory of the sacrum, so that the end of the rectum may be reached, if the organ is not entirely wanting, or if it is not interrupted in its superior portion and adhering to the superior wall of the bladder. If in searching towards the promontory of the sacrum, the rectum cannot be found, the operator should not fail to explore the anterior wall of the pelvis. To this end, the perineal wound, if necessary,

may be enlarged, in order to examine whether the terminal end of the rectum may not be adhering to the bladder, to the vagina, or to the uterus.

Should the operator at any time during the search detect with his finger a fluctuating tumor, more or less elastic, and of a dark-brown color, which he can ascertain if necessary by the speculum ani, he may be assured that it is the rectum; and when thoroughly convinced of this, he should seize the projecting end of it with the bull-dog forceps, or double tenaculum, and endeavor to draw it gently downwards into the perinaeal wound; no very considerable force, however, must be applied, and if it does not yield, it will be owing to adhesions which, if not too numerous and too strong, should be carefully loosened by the fingers, if possible, using the knife or scissors only when they are very firm, and require great care in their division. It is important and always very desirable that the projecting and terminal end of the rectum should be brought down into the perinaeal wound, but if this is impossible, in consequence of its locality and adhesions, the operator should not hesitate to seize any easy movable portion of the rectum which may be near, and bring it down into the external wound, to serve in the formation of the anus. The terminal end of the rectum being left in its position, and being cut off from the circulation of the faecal matter, will gradually contract, and ultimately become obliterated.

As soon as the end of the rectum is brought down sufficiently low, a needle armed with a double ligature should be passed through it, by means of which, and the forceps or hooks, it should be drawn down to the level of the integuments. The cul-de-sac should now be opened by a longitudinal incision from front to rear, its contents completely emptied, the wound thoroughly cleansed, and its cut edges attached by six points of suture to the integument of the corresponding edges of the perinaeal wound, in the exact and proper situation of the anus, care being taken that the mucous

membrane should overlap the external skin, in order to prevent the stercoral matters from escaping into the cellular tissue between them. The remainder of the perinaeal wound, both in front and behind the newly-formed anus, should then be closed by suture. The child's legs should be bound together by a bandage, the wound dressed with a compress dipped in a cooling lotion, and frequently renewed, over which the usual napkin should be applied to receive the discharges, and the child placed by the side of its mother in bed and kept warm.

After the operation, it is indispensable to success that extreme care should be taken of the child. If the mother cannot nurse it, choice must be made of a good wet-nurse. Full baths and frequent emollient injections should be enjoined, and an equable temperature should be maintained in the apartment. The artificial opening, which always tends to contract, should also be closely watched, and sufficiently dilated, from time to time by the finger or elastic bougies.

8. *The Ordinary Method of Operating.* By this method the end of the rectum is sought for, much in the same manner as by the preceding, but instead of being brought down when found, it is opened and suffered to remain in the exact position in which it was discovered, and the passage which has been made up to it through the perinæum, must be kept open and supply that portion of the rectum which is absent. The difficulty and the success of this proceeding depend in a great measure upon the higher or the lower position of the blind sac of the rectum, for in proportion to the distance of the cul-de-sac from the skin of the perinæum, will be the danger of faecal infiltration, and the difficulty of maintaining a sufficiently free and permanent opening after the operation.

If the surgeon, after having found the cul-de-sac of the rectum, should find it impossible to bring it down into the perinaeal wound as already advised, in consequence of its

peculiar position, its numerous and strong adhesions, or its shortness, he should have recourse to the ordinary method.

As soon as the rectum is discovered by the surgeon, its projecting point should be well exposed, and the sharp-pointed bistoury, or a trocar, thrust into it, and the contents of the bowel evacuated, especial care being taken to make the puncture directly in the end, if possible, and not in the side of the rectum. The puncture thus made should then be enlarged crucially, with the probe-pointed bistoury guided by the finger, taking care to make it sufficiently free and permanent at first, in order to avoid a second effort, as the tendency to contraction is always much greater in subsequent operations. When the blind end of the rectum is thick, hard or knotty, resembling cicatricial tissue, as is sometimes the case, the whole of it, or as much of it as possible, should be removed, provided it can be done safely. After the opening has been sufficiently enlarged and the rectum completely emptied and washed out by warm mucilaginous enemata, that part of the perinaeal wound, in front and rear of the portion designed for the anus, should now be closed by suture, taking care, however, to leave a sufficiently ample opening, and in the proper place, for the new anus. A silver canula much in the form of a nipple, or similar to the tracheotomy tube, with a very slight curvature adapted to the direction of the rectum, the length of the newly-made passage, and about three-eighths of an inch in diameter, should now be introduced and secured in its situation by two strips of tape passed through rings at the external end of the canula, and tied in front and behind to a circular bandage fastened round the body. The usual napkin and a compress dipped in a cooling lotion, should now be applied, and the child put to bed.

It would be advisable to have several of these tubes of different sizes on hand, in order that while one was out and being cleansed, the other might be in. They should be constructed with their superior extremity bevelled or rounded

off, to facilitate their introduction, and their inferior extremity should be furnished with a shoulder, anteriorly and posteriorly, with a ring in each to put the tape through, for the purpose of confining them in their situation. [Vide *Plate 11, Figure 12.*]

The silver tubes are the best; elastic ones, however, if lined with flexible metal, are very good and answer very well.

The canula should be frequently withdrawn and cleansed and the newly-made passage washed out, and should there exist any undue irritation, the parts should be often well bathed or fomented to allay it. The tube shields the raw and highly delicate surface of the newly-made canal from the irritating effects of the excretions, giving it, to some extent, that protection which a mucous surface affords; it also, perhaps better than any other, preserves the continuity between the opened end of the rectum and the external parts, for the free passage of the faeces. The fulfilment of these indications is absolutely essential to the success of the operation.

After the hollow instrument has been used for some time, or until complete cicatrization has taken place, it may be laid aside, and the finger, or the wax or elastic bougie occasionally passed, in order to preserve the passage patulous.

9. *The Liability to Coarctation.* To prevent coarctation or obliteration of the newly-formed canal, constitutes the most difficult, troublesome, and serious part of the after treatment of this, the ordinary method of operating, and a great obstacle to the success of the operation, especially in all instances in which the blind sac of the rectum has been found at considerable depth from the external surface. Mr. Benjamin Bell especially directs attention to this difficulty in the two cases upon which he successfully operated. [Vide *Cases XXX—XXXI.*] Mr. Miller, of Methven, has recorded an interesting case of this character, in which the tendency to the closure of the newly-formed opening was so great, that he was compelled to repeat the operation ten times before the little pa-

tient was eight months old. [Vide Case CXXXVII.] Another similar and interesting case is related by Mr. Francis McEvoy. [Vide Case XXXIV.] M. Velpeau says, "The last portion of the intestine can never be reëstablished but in a very imperfect manner. It is a fistula which we substitute in place of the natural tube. The species of mucous surface which ultimately becomes developed, can but very feebly represent the tunics of the anus. Though the system be incapable of entirely closing up stercoral fistulas, it has a constant tendency to diminish them, so that they soon become nothing more than mere ducts for the passage of fluid matters. The absence of the sphincter, especially, is a fatal bar to success. When this is the case, it would be extremely probable that the anus which had been artificially reëstablished would be one of the most difficult to keep open." (*Op. cit. p. 1090.*)

Some surgical writers declare, however, that if the operation is properly performed—that is, if the incisions are sufficiently extensive, no contraction or disposition to obliteration of the artificial canal will take place, and consequently no difficulty will be experienced in keeping it pervious. Among those authors may be named the celebrated French surgeon Dionis. (*Cours d' Operations de Chirurgie. Edit. IV. me. par La Faye. tome I. p. 391. Paris: 1740.*) And also Mr. Malyn, a late English surgeon and writer, who says—"Great stress is laid by some authorities on keeping a plug in the anus, to prevent the reunion of the sides of the wound. This might be of some service if the incisions were so slight as only to serve for present exigencies; as then the remainder of the cure must be effected by dilatation. But when the operation has been properly performed, there is no occasion for a plug, inasmuch as the cut having passed across the direction of the muscular fibres, they will retract and drag the faces of the incision away from each other, so that if the object were to reunite them, it would be most difficult to accomplish." (*Cyclopaedia of Practical Surgery. By W. B.*

Costello, M. D. Vol. I. Article, Anus. p. 343. London : 1841.)

It appears to me, however, that such an operation as Mr. Malyn here recommends would completely destroy the power of the sphincter ani muscles, if they existed, and ever after occasion incontinence of faeces, an infirmity which might not be preferable to death.

10. *The Objections of M. Amussat.* Twenty-five years ago the celebrated M. Amussat, whose highly improved method, it will be observed, I have in part recommended and adopted, discarded the ordinary operation in these cases, in consequence of what he conceived to be the insurmountable difficulties that always attend it. He declared most positively, that the ordinary method by simply incising down upon the rectum, when the blind sac of this organ laid deep, was entirely inefficient, and ultimately attended with uniform failure. This he attempted to establish and maintain in a remarkably able paper, which was read before the Academy of Sciences on the second day of November, 1835, styled—“*Histoire d'une Opération d'Anus artificiel pratiquée avec succès par un nouveau Procédé, dans un cas d'Absence congéniale de l'Anus ; suivie de quelques réflexions sur les Obturations du Rectum.*” (*Gazette Médicale de Paris. Novembre 28, 1835.*)

It appears that M. Amussat was first led to reject the ordinary operation, from the circumstance of his having performed it unsuccessfully upon two cases, in each of which the rectum terminated between one and a half and two inches from the cutaneous surface of the perineum. The operation, he says, was performed in the ordinary manner, by simply cutting down on the rectum, but both infants died jaundiced in a few days, which event he attributed to the absorption of the bile and the meconium, consequent upon their coming in contact with a wound of such considerable extent. That M.

Amussat, however, has considerably exaggerated the imperfections, difficulties and failures of the ordinary method, will be sufficiently obvious when we take into consideration the success which has attended it in numerous instances ; some of them, it will be observed, were of a most discouraging character, the operation having been performed under the most unfavorable and embarrassing circumstances. He has in thus imputing uniform failure heretofore to this operation, done injustice to the several able and distinguished surgeons who have in several instances performed it so successfully.

The main objection that M. Amussat urges against the operation, and the one which led him to reject it altogether, is, that the bile and the meconium are liable to be absorbed by the fresh surfaces of the wound made by the operation, and thus cause jaundice, or mortal degeneration of the blood. It was to this circumstance alone he attributed the loss of his two cases, already alluded to. M. Amussat, however, failed to verify this positive declaration of his, by a *post-mortem* examination of the biliary organs of his two unfortunate cases. I do not believe that the icteroid appearance of these cases had anything whatever to do with his operation—that this appearance of the skin was not caused by absorption of the bile and the meconium, in the manner he imagined. They doubtless would have died jaundiced had he not performed the operation, for it is a notorious fact that by far the largest number of such cases have this yellow tinge of the skin, independently of any operation. Nearly all such cases, unless completely relieved by the operation, die jaundiced ; the jaundice, however, is neither the result of the absorption of the bile and the meconium by the wound, nor is it the immediate cause of death. The operation, if timely and judiciously performed, instead of inducing jaundice, is the first step towards removing it, if it already exists, and of preventing it, if it does not exist. The icteroid tinge of the skin in these instances may be the result of the too long retention of the meconium

in the intestines, or it may be the result of inflammation of the umbilical vein, or of the biliary ducts; indeed, this icteritious appearance is a phenomenon not unusual in infants of from two to three days old, even when no malformation at all exists, doubtless consequent upon a temporary excess of the coloring matter of the bile in the serum of the blood, for I have myself often observed in the new-born the whole surface of the body, as well as the tunica conjunctiva, to acquire a yellow hue, more or less intense, the result of a slight or a severe acute hepatitis which obstructs the circulation of the bile and causes its passage into the blood. About one-third of all infants born, are more or less affected with icterus. The main objection of M. Amussat, to the ordinary operation upon this ground has, therefore, in my opinion, no foundation in truth. His objections, however, to the operation, on account of the liability to closure of the newly made passage, to infiltration and the formation of stercoral abscesses in the vicinity of the artificial anus, are much more plausible, for these accidents sometimes certainly occur, and they are serious obstacles to the success of the ordinary operation.

11. *The Method of M. Amussat.* The chief feature, or peculiarity of the method of M. Amussat, is the application to the anus of the principles and the practice which Dieffenbach applies to the lips, in cases of narrowing and closure of the mouth. (*Traité sur l'art de restaurer les déformités de la face, par déplacement.* Montpellier: 1842. Atlas.)

I have already shown at the commencement of this section, that M. Amussat advises the blind end of the rectum when found, to be detached from its adhesions for the purpose of bringing it down even with the external opening made by the incision, and there attaching its mucous membrane by sutures to the lips of skin formed by the edges of the cutaneous wound. It will thus be seen that the object of M. Amussat's method is to supply the whole track of the artificial canal.

with the natural tissues, which in these cases is the great desideratum, these tissues being already prepared and adapted to the exercise of the functions which they are designed, and will be called upon to perform.

It must be admitted that M. Amussat's modification of the ordinary proceeding is in several respects a most decided and most admirable improvement—that it is highly ingenious and deservedly meritorious; but it also must be admitted, however, that it cannot be universally adopted; that it is by no means void of danger, for by depressing the rectum too much, serious if not fatal consequences might be the result; and that it is not, in every case, as essentially necessary to success as he intimates. It will doubtless succeed well in all cases in which the cul-de-sac of the rectum does not lie deep, and having no adhesions, floats loosely in the pelvic cavity, as it does in some instances; or when it can easily be separated from its adhesions, or these themselves are capable of being stretched, so that it can be drawn down without much force or difficulty to its external position in the perinæum. It is however, on the contrary, impracticable when there is considerable deficiency of the rectum, the very cases in which it would be the most essential. The great difficulty in such cases is elongating the rectum sufficiently. In order, however, to obviate this difficulty, M. Amussat advises that the artificial anus be established in the coccygeal, instead of the perinæal region, in as much as the blind end of the rectum, lying nearer the former than the latter, would consequently have a shorter distance to traverse in reaching the surface, by being drawn directly backward, than by being pulled downwards to the natural situation of the anus. He therefore advises the external incision to be made immediately anterior to the coccyx, or to the left of this bone. He even advises the excision of the os coccygis, if necessary to gain room; having himself on one occasion for this purpose, removed the extremity of this bone in a case of this kind.

The child, however, died a few days afterwards. [Vide *Case CXLIV.*]

It will be observed that M. Amussat, unlike M. Roux de Brignoles, in this respect, attaches no importance whatever to securing for the benefit of the artificial anus, the sphincter muscles, by bringing down the end of the rectum into immediate contact with them; but on the contrary deprecates any attempt of the kind. For the purpose of making his favorite method sufficiently elastic to extend to all cases in which the end of the rectum can be reached, he would sacrifice both the natural situation of the anus, and the sphincter ani muscles. But to discard these invaluable adjuncts, on this account merely, when they could be preserved by the ordinary method, or by that of M. Roux, would be a great error which should itself be discarded; for without these it is impossible to establish the complete function of the artificial anus. The practice of M. Amussat, however, corresponds with his theory on this subject, which is that the interior outlet of the body is disposed in such a manner, independently of its muscular apparatus, as to favor voluntary retention of the fæces; consequently that the power of retaining and controlling the discharge of the fæces does not solely depend upon the sphincter muscles, for patients have been known to retain control over the alvine evacuations, after the excision of the inferior extremity of the rectum. He therefore comes to the conclusion that the same power will exist after his operation for artificial anus in the coccygeal region, and hence he imagines there is no necessity for the sphincter muscles. In this it will be seen he differs but little in opinion from Mr. O'Beirne. (*New Views of the Process of Defecation. Dublin, 1833.*)

It was the duty of M. Amussat, however, to have established his theory by undoubted facts, before drawing such conclusions from it. This he never did, and until he does, whether the operation is performed by the ordinary method,

or by his own, the natural situation of the anus in the perineal region should be selected, and the sphincter muscles, if they exist, should always, if possible, be secured, so that the power of retaining the faeces by the artificial anus would without doubt fail to be preserved.

The first case upon which M. Amerssat executed his invaluable operation, was a very complicated and difficult one; and as it is highly interesting and most fully illustrates his peculiar method, I have produced it entire. [Vide Case XLII.]

12. *The Operation of M. Amussat, performed by others.* Mr. Waters of Parsonstown, England, records a case of imperforate anus and rectum, in which in 1842 he performed a similar operation to that performed by M. Amussat seven years previous, (1835.) Complete success attended this operation. It is said that Mr. Waters was not at all aware of the method of M. Amussat when he performed this operation, but was led to adopt the plan he followed, solely by his own reflections upon the case. This may all be true, and it may afford another example that good surgeons every where think alike and come to the same conclusions. One thing however is certain, that the operation of M. Amussat was notorious for seven years in France, previous to that performed by Mr. Waters, and that the Channel only divided the two surgeons. I have presented Mr. Waters' case in full. [Vide Case XLIII.]

Mr. W. G. Smith of Vauxhall-Walk, London, in 1846, adopted in part the method of M. Amussat, in a very extraordinary case. Complete success was the result of the operation. [Vide Case XLIV.]

Mr. West says that he was a witness to the great advantages of M. Amussat's method in a little boy upon whom Mr. Shaw operated successfully a few years since at the Middlesex Hospital. (*Lectures on the Diseases of Infancy and Childhood.* Lect. XXXI. p. 377. Phil. 1854.)

Dr. Hermann Friedberg, of Berlin, in a late and very able essay on Artificial Anus, highly extols the method of M. Amussat, which he has more or less improved and faithfully carried out. He successfully operated on a grave and very interesting case by this method, somewhat modified by himself, and as this case fully illustrates his method of operating, I have presented it in detail, translated from the French, having been unable to procure a German copy of his work. [*Vide Case XLVII.*]

Mr. Redfern Davies, of Birmingham, England, also highly approves of the method of M. Amussat, and proposes a modification of it. His remarks on the subject are practical and certainly deserve attention. He did not, however, adopt his own suggestions in a case of imperforate anus and rectum upon which he operated. [*Vide Case LIII.*] The considerations, however, which influenced him not to do so in this case appear obvious enough. "The reasons," says he, "that induced me, at the time when the rectum was opened, to forgo even the attempt to bring it down were—that I deemed the distance, two and a quarter inches, at which it was situated from the external opening, to be so great as to preclude the possibility of so doing. Bound down as the rectum is by its fold of peritonæum, the meso-rectum, I feared to encounter the almost certain dangers of peritonitis, or pelvic cellulitis, which must inevitably be the probable consequence of the laceration of its connective tissues, to permit of its descent for such a distance. Besides, at such a depth, how great an uncertainty there must be as to what the forceps might seize hold of." And again, he says:—

"With all due deference to the opinions of others, and in hopes that it will receive whatever of attention it may merit in their hands, I beg to lay before the opinion of my more experienced professional brethren the following modification in the operative interference usually adopted in these cases,

which I had intended, had the patient survived a sufficient length of time, to carry into effect. As far as can be judged by the evidence of the published cases, death is the consequence of different causes, according as the rectum is, or is not, brought to the opening of the wound. If it is, death ensues from the injuries inflicted by so doing. If it is not, death ensues, but secondarily, in consequence of the difficulty to defecation being only partially removed. I would propose, therefore, to combine these two procédés, and endeavor to obtain, by extending the operative measures over a considerable time, immunity from the evils of both: viz., supposing, in the first instance, that an opening had been made (as was done) into the rectum, nature being relieved, had not other influences intervened, the child would have lived *pro tem.*; but then comes into consideration the subsequent difficulty in passing the stool, owing to a gradual narrowing of the passage. All this is said to be due to the mucous membrane not being continuous with the outlet.

To remedy this, therefore, when the parts have recovered from the effects of the first operation, introduce a pair of forceps, and, seizing hold of the lips of the opening into the rectum, endeavor to bring it down, not by one vigorous and decisive holding on by the forceps, and by main force bringing the gut to the external orifice, but by gently and repeatedly soliciting its descent, introducing the forceps at certain intervals, and gradually endeavoring to accomplish the end. If the rectum can be so moved from its position, and be brought lower down in the pelvis (and so by repeated attempts it has been proved) by one forcible extension, and even that sometimes crowned by success, how much more likely is it that success should attend the proceeding, when, by the almost imperceptible tractions made upon it, the great causes of failure, viz., peritonitis and pelvic cellulitis, would be removed, owing to the small amount of disturbance that

would take place in the soft parts. Although, as far as I am aware, this procédé by successive stages has never before been broached in any writings on the subject, the idea was taken from a case reported in the "Lancet," vol. i. p. 493, 1846, [*Vide, Case XLIV*] in which an incision was made into the perineum for a distance of three inches, and on the second day an attempt was made, by gently pulling, to draw down the gut, which was not, however, fastened to the external opening. One month afterwards the child was doing well.

I am fully aware that there is a vast deal of essential difference between this procédé and the one I advocate: nevertheless, accomplishing the end by successive stages, is in this case shadowed out, and will, I trust, assume a definite status in surgery." (*Edinburgh Medical Journal, March, 1858. No. XXXIII. p. 811.*)

Although M. Amussat, in his very able and highly interesting and practical paper already alluded to, laid down his beautiful process for the establishment of an artificial annus in the perinæum, and demonstrated its practicability and complete success in the very first case upon which he executed it; yet strange, passing strange, he never afterwards in other cases pursued this method to its consequences, but in place of it, adopted and practiced colotomy. He thus seemed to have designed and built a most beautiful superstructure, merely to gaze upon it for a moment, and then to demolish it.

13. *The Operation by Puncture.* Perinæal puncture was the earliest method of operating in cases of congenital closure of the anus or the rectum, and is still recommended and performed by some surgeons of the present day. They use for this purpose a trocar, a pharyngotomus, a lancet, or some other piercing instrument, and thrusting it into the perinæum at the normal place of the anus, they make it follow the natural direction of the rectum with the intention of penetrating the end of this intestine, should it be present and in its normal position.

The method by puncture is recommended in consequence of its being very simple and quickly executed in urgent cases, even by the young and inexperienced surgeon. There are, however, but few cases on record in which this operation has succeeded ; it should therefore be entirely abandoned at this day, with the exception of those cases in which the end of the rectum can be appreciated both by the sight and the touch—that is, in which it lies near the surface and is distended with gas and meconium. The "*blind plunge*" of such an instrument into the perinæum in those cases in which it is absolutely requisite to penetrate deeply, is a most hazardous proceeding, and one well calculated to inflict fatal injury to some of the delicate and important organs of these parts. Such an instrument is exceedingly liable to perforate the bladder, especially as this organ, in cases in which there is considerable deficiency of the rectum, occupies a larger space in the pelvis. There is indeed a great deal less certainty in the result of this operation than perhaps in any other in surgery. When the trocar or any instrument of the kind is used in these cases, the operator is compelled to follow the natural direction of the rectum, but, as I have shown elsewhere, this intestine often deviates from its normal course. Should the rectum be further in front or to either side than natural, it might be missed or not opened in its proper place, and the operation of course would fail, and the patient be lost ; whereas in the operation by dissection, the blind end of the rectum can be sought for, and if it exist, can be found somewhere in the pelvic cavity within the safe limits of the operation. Of all other openings too, those made by puncture are the most liable to contract and become obliterated. Puncture therefore, in my opinion, can never be substituted for dissection in these cases, without great uncertainty, risk and danger.

M. Petit, when speaking of the operation by puncture, observes that it is very difficult to find the right place for

making the perforation into the blind end of the rectum, as he generally found it formed into a knot in these cases. For performing such an operation, he recommends a trocar, the canula and circular plate of which are so slit open, as to serve as a groove for a lancet or bistoury to run in, to enlarge the aperture, after the trocar has been pushed into the blind end of the rectum. (*Mémoire de l'Académie Royale de Chirurgie. tome I.*)

Wolf mentions a very bad case of imperforation of the anus and rectum, in which he used the pharyngotome with complete success. [Vide Case LIX.]

Von Schleiss, of Munich, reports a highly interesting case of imperforation or absence of the rectum, above a normal anus, in which he succeeded admirably by the *happy plunge* of a trocar. [Vide Case XC.]

Dr. James Jones, of New Orleans, Professor of the Practice of Medicine in the Medical Department of the University of Louisiana, and a co-editor of the New Orleans Medical and Surgical Journal, reports three interesting cases of imperforation of the anus and rectum, in which the operation by puncture was performed with apparent success, but unfortunately these cases terminated fatally in a short time after the operation. [Vide Cases LX., LXI., LXXXVIII.]

14. *Modification of the Operation by Puncture.* The late able and distinguished surgeon, A. Copeland Hutchison, whom I have already several times quoted, proposes a modification of the operation by puncture. His method is to use the trocar after having made an incision in the ordinary manner with the scalpel a certain depth without finding the rectum. He says—"After having cut to the depth of about an inch and a half with the scalpel, which will be as deep as can be done with safety with this instrument, and there is no appearance of meconium; we should then lay aside the scalpel and recommend the introduction of the point of a middle-sized

common trocar to the bottom of such incision. This instrument should then be pushed gently upwards and backwards, inclining rather to the left of the hollow of the sacrum and natural descent of the rectum, as far as the surgeon thinks it prudent, or until he imagines, from a want of resistance to the force employed, that he has penetrated the gut." (*Op. cit. p. 260.*)

It will be perceived that the process of Mr. Hutchison does not differ very essentially from the ordinary operation by dissection, and but little from that of Benjamin Bell; consisting mainly in this—that he considers it too unsafe to carry the incisions with the scalpel beyond one inch and a half, and that from this point the trocar is the best and safest instrument. He operated successfully on a case of imperforation of the anus and rectum, which I have given entire, and which will illustrate his method of operating, and prove highly interesting on account of the great depth which had to be cut through, before the blind end of the rectum was penetrated. [*Vide Case XXXVI.*]

Dieffenbach has also modified the operation by puncture. He commences the operation in the perinaeum by a small crucial incision, excises the flaps to make more room, and continues the depth of the crucial incision, especially the longitudinal one, directing it gradually backwards until he reaches one inch in depth. If no evacuation of fæcal matter takes place, he then lays aside the bistoury for a small trocar, and making a firm compression of the abdomen, pushes the instrument upward and backward from the bottom of the wound, following the concavity of the sacrum for a depth of an inch and a half to two inches. After the stilette is withdrawn from the canula, he introduces a large solid silver sound, and endeavors by this means to reach the cavity of the pelvis. When by plunging the stilette yet further, a measure which he regards as very hazardous, he does not reach the rectum, he withdraws the canula, introduces into the canal a

piece of soft sponge, and postpones the rest of the operation to the next day. If notwithstanding the distention produced by the sponge, he perceives no intestinal extremity in motion, from the pressure of faecal matter which fills it, he closes the wound with pieces of adhesive plaster, and has recourse to colotomy. But if the sound penetrates into a cavity, and is easily introduced for some distance, and if a little meconium flows, he proceeds to enlarge the wound. In order not to lose the opening, he withdraws the canula upon the sound, which he leaves in place, introduces by its side a large grooved director, withdraws the solid sound, places the director in the hands of an assistant, and following the groove, introduces into the rectum a strait blunt-pointed bistoury and enlarges on four sides the wound made with the trocar. When at last the opening is sufficiently large to allow a perfectly free passage, he injects with tepid water, by means of a short elastic canula, evacuates the bowel as thoroughly as possible, and then by means of the sound inserts a pledget of lint besmeared with cerate. If it is possible, he brings down the opened end of the rectum, and unites it to the edges of the wound in the skin. (*Die Operative Chirurgie. Band. I. S. 673. Leipzig: 1845.*)

15. *Failure to form a Perineal Artificial Anus.* Should the surgeon, in consequence of the absence or the great depth of the rectum, fail to reach it, and consequently fail to establish an artificial anus in the perineal region by the directions and improved method I have already presented for this purpose; or should the case be of such a character, that these measures, or the ordinary operation would be considered altogether impracticable, he should then proceed at once to form an artificial anus in the abdomen. This operation, however, should never be performed but upon the most mature reflection, after having made a most minute and careful examination of the case, and from a firm conviction that it offers the only

terms upon which the life of the little patient can be purchased. [*Vide the chapter on "Abdominal Artificial Anus."*]

SECTION V.

CASES AND REMARKS.

CASE XXVIII.—M. Fenerly reports the following very interesting case of imperforate anus and rectum:

"On the 30th of March, 1857, a male child was brought to M. Archigène, born at full time twenty-five hours previously. The child appeared well developed and healthy. The parents as well as the midwife did not perceive at first the malformation which caused them to call him in. It was not till eighteen hours after birth, and when the child began to toss about and cry, that the parents discovered the absence of the anal opening.

"At the first visit the symptoms were as follows: The child was very restless, cried violently, and refused the breast. The respiration at first normal, soon became short and laborious, the skin was blueish, the abdomen swollen and painfully distended; the child seemed to suffer excruciatingly with colic.

"On examination of the perinæum there appeared no mark or vestige of an anal opening. The raphé existed very clearly; it commenced at the inferior extremity of the coccyx, and continued into the perineal region; the skin presented no change of structure. No depression existed at a point corresponding with the anal orifice; only when the child made efforts to cry, a slight elevation was perceived.

"The scrotum contained but one testicle, the right one was still retained within the ring; the child had already urinated several times.

"The imperforation being quite evident, M. Archigène and M. Fenerly proceeded to the operation. After having placed the child upon the table, the legs flexed and separated, M. Fenerly explored the perineal region, and precisely on the spot which raised up, during an effort, he made an incision. He first divided the skin to the extent of about one inch, then the underlayers in succession to the depth of five-eighths of an inch, taking care to direct the bistoury, at first perpendicularly, then inclining it gradually towards the sacrum, so as

to avoid the bladder, and following the usual course of the sacrum. The fore-finger which directed the bistoury, at the same time that it explored the depth of the wound, felt now a fluctuating point; into this the bistoury was plunged, and immediately a large quantity of meconium issued. The child was at once relieved, the respiration became normal, and the abdomen decreased in size. After having evacuated the intestine and washed out the rectum, he introduced an elastic sound smeared with cerate. The child sucked vigorously and slept perfectly well. The third day after the operation, MM. Fenerly and Archigène saw the child again. The bluish color of the skin had disappeared; the evacuations were normal, yellow in color and more moderate in quantity; the general health of the child was good. They continued to introduce an elastic sound of large caliber.

"On the twelfth day after the operation the child was well; the wound completely cicatrized without contraction. The little patient now has an anus whose opening is nearly five-eighths of an inch in size." (*Gazette des Hopitaux de Paris. Année 1857. No. XCVIII. p. 391.* From *Gazette Médicale d'Orient.*)

CASE XXIX.—The following very interesting case is reported by Dr. A. B. Shipman, of Cortlandville, N. Y., in a letter to the editor of the "*Boston Medical and Surgical Journal,*" dated October, 1840.

"On the 30th of October, 1838, Elizur Graves, of Solon, in this county, consulted me respecting a child of his, æt. three months, for a malformation of the anus, which was congenital. It was not discovered until some days after birth, when, after repeated exhibition of cathartic medicines, no evacuation taking place, the nurse, on attempting to exhibit an enema, found no opening. A practitioner was consulted, who gave an unfavorable prognosis as to any remedy, and the child was considered as among the incurable. But as it continued to live, and even to thrive, at the end of three months the parents brought it to me. On examination, there was no opening into the rectum, but a little posterior to the natural situation of the anus a slight projection of the skin was observed, which, on examination, gave an obscure feel of fluctuation. The skin was also slightly inflamed. I advised an opening into this point, which the parents readily assented to, and it was accordingly made, and about a tablespoonful of pus discharged, but no faeces as was expected. I next examined the opening with a probe, but could find no communication with the bowel. I next passed a sharp-pointed narrow bistoury, with the edge

towards the sacrum, in the direction of the rectum, the distance of three inches. It was withdrawn, and the point found smeared with faeces. Considerable haemorrhage followed. I next introduced an elastic gum catheter, of small size, using different sizes until the largest ones could be passed without difficulty. Some warm water was now injected through the tube, which brought away a quantity of liquid faeces. I directed that the tube should be passed twice a day, and an injection thrown in each time, and in the intervals a wax bougie of large size worn constantly. The next day after the operation, a pint of faeces escaped at one time, and the same amount continued to escape daily for a week. Before the operation the child had fits of crying and straining; the abdomen was also much enlarged and very hard. These ceased at the end of a week. The child was also troubled with vomitings before the operation, which now no longer were present. The bougie was persevered in for four weeks, at the end of which it was discontinued, and the child improved very fast in flesh; the evacuations from the bowels became natural, and it has continued well ever since. The control over the bowels is as perfect and natural as in any healthy child.

"There are some features in this case which make it more than ordinarily interesting. In the first place, the length of time which elapsed before the operation, and the question how long this state might have continued without serious consequences to the life of the child; and second, whether nature would have finally effected a cure by suppuration or ulceration. These are questions which may with propriety be asked. As to the length of time which elapsed, the child was nearly as large as ordinary children of that age, and was not afflicted with vomiting or crying more than many are who are considered healthy. The process of nutrition and chylification went on regularly, and the faeces were formed as in health. The large intestines must have become much dilated to have contained the quantity which had accumulated in them.

"Whether nature would have accomplished an opening for the contents of the rectum, is not so easily answered. I am convinced that the small cavity containing pus did not open into the rectum, and also that the termination of the bowel was much higher than that of the abscess. Yet it is possible that the ulcerative process might have finally done what was accomplished by art." (*Boston Medical and Surgical Journal*. Vol. XXIII. p. 210. Boston: 1840.)

CASES XXX—XXXI.—The two following cases of imperforation of the anus and the rectum, were successfully treated by Mr. Benjamin Bell. In both of these instances the chief difficulty, after the operation, consisted in maintaining the newly formed passage patulous.

Mr. Bell says, “I myself have had two such cases, in both of which the gut lay deep, and in both I was fortunate enough to form an anus, which for a good many years has continued to answer the purpose sufficiently. But in each of these a great deal of difficulty was experienced in preserving the passage sufficiently wide and open; for as soon as the dossils of lint, and other tents made use of for preserving the passage, were withdrawn, such a contraction occurred as for a considerable time rendered the evacuation of the faeces extremely difficult. Sponge tent, gentian root, and other substances which swell by moisture, were at different times employed, but these were uniformly found to produce so much pain and irritation as rendered their continuance altogether inadmissible. Applications of this kind are frequently, indeed, recommended in such cases; but any person who has ever used them, in parts so exquisitely sensible as the rectum always is, will readily acknowledge the impropriety of the advice.”—(*Op. cit. p. 278.*)

CASES XXXII—XXXIII.—Latta mentions two cases of this species of malformation, in which he operated with complete success. He says he found it necessary in both these cases to make an incision of one inch and a half in depth before the rectum could be laid fully open, so as to allow free exit for the faeces. Oval canulae were introduced and removed once every twenty-four hours. In two months there was a cure. The instrument, however, was used for nine months, to prevent contraction. (*A Practical System of Surgery. Vol. II. p. 87. Edinburgh: 1795.*)

CASE XXXIV.—Mr. Francis McEvoy reports the following case in a letter to the Editor of the “*London Lancet*,” dated Balbriggan Dispensary, October, 1846.

“SIR,—My father, who held the same medical office in this dispensary as I now hold, was requested to see an infant, whom he found with imperforate anus. There was no indication whatever of an opening, no discoloration or elevation, but the skin was quite natural. The child was twenty hours old, and had had several convulsive fits, and three or four doses of castor oil, and some warm baths had been administered. Before discovering the imperfection which my father

was called to treat, an opening was made, about an inch in length and half an inch in depth, into the rectum, the meconium was discharged, and everything else done that is usually recommended. The case progressed favorably for six or eight weeks, when the anus began to exhibit symptoms of closing, and finally did close, despite every means to keep it open. On the day after, an abscess formed, and pointed about a quarter of an inch anterior to the juncture of the scrotum with the perineum, which, being opened, gave exit to a quantity of very offensive feculent matter, which still continues discharging from the same orifice. The boy is now fifteen years of age, enjoys excellent health, suffers no inconvenience or annoyance from this condition of the parts, retains his faeces well, and, in fine, has as good a sphincter as man need desire. Last spring he sailed, accompanied by his parents, for America, in sound health. I thus trespass on your columns, from the case being recalled to my recollection on seeing, in *THE LANCET* of August last, under the head of "British Journals," a case, operated on by M. Amussat, of Paris, in which retention was complete, and which has since been under the observation of Sir P. Crampton." (*London Lancet.* Vol. IV. p. 568. December: 1846.)

CASE XXXV.—The following interesting case of imperforation of the anus and the rectum, was communicated by Dr. John P. Campbell, of Flemingsburg, Ky., to Dr. Samuel Brown, of Lexington, Ky., in a letter dated March 9th, 1801, upwards of three months after the operation. This letter was subsequently published in the "Medical Repository," one of the oldest medical journals in this country, and is as follows:

"November 23, 1800, I was called to visit the child of Mr. Hinson, in the vicinity of this place, on the second day after the birth. The case was an imperforate anus. As an operation was inevitable, the next day was determined upon for that purpose. On the third day, when I went to operate, the child was very fretful and uneasy—the abdomen was much distended and discolored, and from the information of the nurse, the faeces had been frequently vomited up through the day. I began the operation by making a longitudinal incision on the place where the anus should have been, which was slightly marked by nature. This incision I extended in the direction of the os sacrum, with a lancet, until that instrument could be no longer serviceable; and no faeces following it when withdrawn, I introduced the scalpel, and carried it up in the same direction until I had the pleasing sensation of having reached a cavity. The instrument was withdrawn,

and the meconium flowed plentifully. The child was placed in a warm bath up to the middle, for a few minutes; and after this a tallow bougie being introduced to keep the orifice open, the little sufferer dropped into a pleasant sleep. The bougie and warm bath were continued but a few days, with the occasional use of some magnesia alba and rhubarb, till the child recovered, and every expectation to be derived from the operation was fully answered. At this time the child does well, and the mother assures me she observes nothing in its present condition different from that of others which she has already nursed. My only fear was that the sphincter muscle might be destroyed; but I am now convinced no inconvenience will ever result from that quarter. It was a female child; and the length of the canula, which I ascertained by measuring the instrument, appeared to be about three inches." (*Medical Repository.* Vol. V. p. 45. New York: 1802.)

CASE XXXVI.—The following exceedingly important case of imperforation of the anus and rectum, is reported by Mr. A. Copeland Hutchinson :

"The fourth and last case," says Mr. Hutchinson, "was the son of a Mr. Smith, a tinman residing at No. 43 Whitcomb Street, and had been born forty-eight hours when the operation was performed, on the 17th of November, 1822, in the presence of Dr. Granville, the father of the child, and the midwife.

"The raphé was the only guide we had for the operation, there being neither hollow nor depression to mark the spot where nature had failed in completing her design. Dr. Granville kindly assisted me, at the operation, by securing the child, and keeping its lower extremities in a proper position during the operation, which was done by making an incision about an inch and a half in length with the scalpel, through the skin and fat, nearly as deep as the incision was long, but narrowing it two-thirds at its fundus. Not having reached the intestine with the scalpel, and considering that we could not so safely proceed further upwards in the direction of the gut with that instrument as with the trocar, the latter instrument was preferred, and directed gently upwards, backwards, and inclining to the direction of the sigmoid flexure of the colon for about an inch; when on withdrawing the stilette, we found the intestine had not yet been reached; the stilette was, therefore, again passed through the canula, which was still kept in the parts, and pushed upwards half an inch further, when, from a want of resistance, I suspected that we had at length succeeded, and on withdrawing the

stilette the second time, meconium flowed through the canula in considerable quantity ; and here it was curious to witness the instinctive straining of the child to relieve itself for the first time, and which would suggest the advantage to be derived from the practice of gently irritating the external skin over the situation of the anus in such cases, with a view of ascertaining the probable distance of the gut from the surface as before noticed ; for, on this occasion, the contorted features of the infant were precisely those of an adult who was constipated, and straining to relieve himself.

" The canula was secured by tapes, and retained in the parts three days. It was then withdrawn, cleaned, and again introduced, the faeces passing through it during that period.

" After about a week or ten days the canula was removed, and an old made sponge tent introduced in its stead ; but whether from its age, or from there being too much wax in its composition, it did not expand, and consequently did not dilate the parts. Some sponge tents recently made were also tried and likewise laid aside, from their inefficiency. The common smooth made bougie of the largest size, was, after some weeks, substituted, and was found to answer the purpose much better. The tents used were about three inches and a half in length, and, as they were introduced close up to their thickest extremity, we ascertained precisely the distance of the intestine from the surface, by measuring the tent with a scale ; the end of the part tinged with bile indicating the termination of the gut, and the verge of the newly-formed anus marking the length of the artificial canal, and which we found to be exactly three inches.

" The child's bowels were occasionally constipated for two or three weeks ; but this was as frequently obviated by the administration of small doses of the oe Recini. Two months had now elapsed from the operation, when the mother was directed to introduce the bougie for a few hours only, every day, and I then took my leave.

" At the end of three months the mother brought the child to my house, and stated, that although its bowels were regular, and the usual quantity of faeces evacuated, she had that morning observed, for the first time, that its urine was in some degree tinged with faeces ; but on being further questioned, she stated that she had no reason to believe the urine ever passed per annum. The child fed well, grew, was healthy, and some teeth appeared at the usual period ; yet still the urine continued to be occasionally tinged with faeces, and until the morning of the day on which it died, the 29th

September, 1823, being more than ten months after the operation, I heard of no circumstance to lead me to suppose that the child had been otherwise than well.

"The mother was reproached for having forborne to send for me during the six days that the child had been observed to be out of health from teething, and a slight bowel complaint. She replied, that she did not conceive the child to be in any danger, as her other children, who are alive and healthy, had all, during dentition suffered in the same way.

"It may be necessary here to state, that during the last seven months of the child's life, I had observed that its evacuations per anum were as healthy and well formed, or figured, as were ever passed by any child of its age.

"On examining this child post-mortem, the artificial anus was found situated in a hollow, so precisely as if it had been originally natural, that the best anatomist would have been deceived by it; and this fact is more worthy of record, when it is borne in mind, that at the period the operation was performed, there did not appear the smallest depression or fissure on any part along the line of the raphé, both nates preserving a continuous convex surface. When the abdominal contents were exposed to view, by reflecting the divided parietes, a somewhat extraordinary disposition of the bowels presented itself; for the small intestines were, apparently, all lying on the left side, resting on the sigmoid flexure of the colon; the intestinum rectum was very large, and distended with air, being at its widest part, (viz, five inches above the external aperture or artificial anus,) *six inches and three fourths in circumference*; and passing from the centre above the pubes to the right side, it rested upon the cæcum caput coli; and then turned downwards behind the bladder to the artificial anus. The lower part of the rectum adhered to the bladder by its peritonæal reflection in the usual manner. The sigmoid flexure of the colon was found *in situ*, and of its natural size, owing probably to the small intestines resting upon it; and the transverse arch, though in its place, was also somewhat larger than natural, and likewise distended with air. The omentum was wanting. The stomach quite empty and flaccid, lay hidden by the arch of the colon. The small intestines were not all distended with air, were of a healthy appearance, and almost empty. The bladder was empty, natural, and adhering to the pubes up to its fundus, evidently pressed into that situation by the contact of the distended rectum posteriorly; and at its fundus there was found a long round substance or membrane, something like the uraeus found at this part of the bladder in calves. There

was also a corresponding mark in the interior of the bladder, which would almost lead one to suppose that this chord had once been pervious.

" All the other viscera were in a healthy and natural state, there being, in fact, not any mark of diseased action anywhere to be found throughout the whole examination, if we except a slight appearance of inflammation on the villous coat of the great arch and sigmoid flexure of the colon.

" The alimentary canal was removed from the stomach downwards, including the artificial anus, with its surrounding fat, bladder, and part of the urethra, with all their adhesions to each other, left entire ; and, during this part of the examination, we found the sphincter ani muscle wanting, but the levatores ani were perfect and strong.

" A section of the bladder and urethra was made anteriorly, when a small valvular aperture was discovered communicating with the rectum, and situated about the eighth of an inch anterior to the caput galinaginis or verumontanum ; the aperture into the urethra admitting only of the passage of thin faeces, it being barely sufficient to admit the end of a common probe, but from its valvular structure precluded the urine from passing per anum ; and not any appearance of faeces having ever been in the bladder was observable ; the lining membrane of this viscus was also perfectly healthy.

" It is worthy of remark, that, throughout the extent of the intestinum rectum, the parietes of this gut were *considerably thicker* than usual, but particularly towards its lower part ; the muscular coat being here probably increased in thickness, because of the additional muscular force required to project the faeces through the long and narrow canal from the termination of the gut to the external parts, a distance (even after the removal of the parts, and maceration in spirits for a fortnight) of one inch and two-eighths ; and there appears to me to be no other way of accounting for the shortening of the artificial canal *since the operation*, than by supposing that the lower part of the rectum had been, by its own muscular action, forced gradually down towards the external part in the acts of stercoration ; and such constant pressure on this immense thickness of adipose matter thereby occasioning the condensation and absorption of great part of the latter." (*Vide Observations on the Principal Diseases of the Rectum and Anus. By Thomas Copeland, Esq., 2nd Edition, p. 107. London : 1814.*)

" The substance through which the artificial anus passed was so compact and condensed, that it seemed almost semicartilaginous ; and it is somewhat curious to observe, in the prep-

aration, how in one part of the mucous membrane of the rectum approaches, in a conical form, towards the verge of the artificial anus; and how in like manner, the external skin passes upwards to meet the descending mucous membrane, so that in one part of the artificial canal will be seen meeting each other the villous coat of the intestine and the external skin, like a dove-tailing of conical processes; or, as Mr. Clift (the able and intelligent curator of the Royal College of Surgeons, who was present at the examination of the parts, and of their adineasurement, as have been here described) aptly remarked, a *Vandyking* of the parts into each other."

"I am also inclined to believe, that the situation in which we found the rectum (on the right side) was not its situation at birth, but that it occupied its natural place; first, because, from the direction in which I made my incision, upwards, backwards, and inclining to the left side, I think I should not, otherwise, so readily have struck it with the trocar; secondly, from the unusual size of this gut, it is to be presumed, that, from the length and narrowness of the artificial anus, and its frequent distention by faeces, it may have been gradually thrown out of its place; thirdly, had it remained in its usual situation, attached to the sacrum, its muscular power in expelling its contents may possibly have been considerably lessened; and fourthly, because, in a case of intussusception of the ileum and cæcum which lately came under my observation, the whole of the latter gut and ascending colon were lodged in the left side, resting upon the sigmoid flexure. The preparation alluded to I presented to the Royal College of Surgeons; and at the same time, published a short account of the case in the Medical and Physical Journal of London.

"There is yet one more remark, as it strikes me, which the post mortem examination of the child Smith seems to call forth; viz, the obliteration of the aperture between the rectum and urethra. In the first place, it was so minute, that no material inconvenience might have resulted from it had it remained open; secondly, from its situation in the urethra, and the progressive increase of the prostrate gland as the child grew up to manhood, it may by this circumstance alone have eventually been closed; and thirdly, if this latter result had not occurred, the stimulus or irritation communicated to the part, at a proper period, by the introduction of a common or armed bougie, might have produced the desired effect,—or otherwise the part might have been cut down upon, as in fistula in perinæo."

"In conclusion, I have only to observe, that this case has proved so highly satisfactory as to the result of the operation for imperforate anus, notwithstanding the great distance of the gut from the external parts, that I should hope there is not any surgeon who will now abandon an infant to its fate, under similar circumstances, until he has proceeded with his incision as far, at least, as was done in this case, taking care that the incision be made in a proper direction,—the operator being guided by the pressure of the gut on the finger introduced into the wound." (*Op. cit. P. p. 266—274.*)

CASE XXXVII.—A case of imperforation of the anus and rectum, similar in many respects to the preceding one—Mr. Hutchison's, but occurring thirty-five years later, was communicated to "*La France Médicale*," and copied into the "*Gazette des Hôpitaux*," the editor of which being ignorant of the case of Mr. Hutchison, says that this case of M. Foucart raises a very important question of surgery, at the same time constitutes of itself a result of the greatest interest. The question is this—When there is no indication through the integuments that the closed intestinal extremity is placed immediately behind the obstructing membrane, and when after having made an incision of a certain depth the intestine is not reached, are we authorized to pursue the search in the same direction, or should we, renouncing the first attempt, immediately proceed to form an anus in an unnatural position? It has been seen that this question was answered many years ago by Mr. Bell, Mr. Hutchison and M. Amussat. The following is the case alluded to.

M. Foucart on the 4th of February 1857, was called to see a male child, born on the preceding evening at eleven o'clock, and who from the moment of its birth, say forty hours, had passed no meconium. Born at full time, of average size, the child appeared otherwise perfectly healthy. It did not seem to suffer at all, there was no tension or tenderness about the abdomen, and it had sucked several times.

Examination of the anal region showed no trace of an opening; the skin passed from one nates to the other, presenting a sort of median raphé, slightly prominent, which was in continuation of the raphé of the scrotum. The most careful examination failed to discover the slightest trace of fluctuation along this median line which could lead one to believe that the inferior extremity of the rectum was immediately adjacent to the skin. There being necessity for prompt action for fear of losing all chance of success by delay, M. Foucart determined to act at once as if he had only to do with that

kind of malformation which M. Boyer has made the second species of his division, and which consists in simple imperforation or occlusion of the anus by a membrane immediately behind which the rectum is found. The usual measures and precautions being taken, he proceeded with the operation as follows. The child was placed on its abdomen, across the lap of a nurse, and an incision of about half an inch long was made in the antero-posterior direction. Then gradually layer by layer, he reached more than one quarter of an inch in depth without meeting any vestige of the intestine; the bistoury met only with cellular tissue. The extremity of the little finger introduced by the cutaneous wound, felt no fluctuation as would have happened, if it had come in contact with the inferior extremity of the rectum. The wound being gradually enlarged in the same manner as before until it was half an inch long, the operator by means of a hollow sound separated the tissues forming the bottom of the wound, and introduced the fore-finger to the depth of at least three quarters of an inch, but with no result. He rested here, but by no means renouncing the hope of reaching the intestine, notwithstanding these fruitless attempts, intending to establish an artificial anus either in the groin, or in the lumbar region as advised by Amussat. However, he did not wish to take the whole responsibility of further operations. M. Maisonneuve being called in, thought the hope of reaching the lower end of the rectum by no means unreasonable, and resolved to push the attempt yet further.

He first introduced into the wound the blades of a strong pair of dressing forceps, and opening them several times forcibly, he endeavored to enlarge the commencement of the canal already made in the cellular tissue, by dilatation alone without division of the tissues. This done, he introduced the extremity of the finger, but could not any more gain evidence of the presence of the rectum. Then armed with a very slender exploring trocar, and following as near as possible the direction of the sacrum, he pushed the instrument slowly upwards; at a certain moment, he thought he felt the trocar enter a cavity. He withdrew the blade of the trocar, and then shortly after the canula, which contained meconium. There was no longer any doubt; the rectum lay about one inch and three quarters in depth. A stylet was introduced through the opening made by the trocar, then upon the stylet a hollow sound, and finally M. Maisonneuve used this last as a conductor to plunge into the intestine the slender blade of a bistoury. A flow of meconium immediately followed. He introduced his finger into the wound and thought he felt

something analogous to a sphincter. No dressing of the wound was made; only frequent lotions and the utmost cleanliness were advised.

On visiting the child next day, it was found to have passed a great quantity of meconium; the napkins were also much stained with blood. The child, however, had been tranquil all night, had slept and did not seem weakened; no more blood passed from the wound. On the following days the child did not seem to suffer, cried no more than children ordinarily do, sucked with avidity, and grew fat sensibly. Gradually the stools acquired the yellow color usual at this age, and when three months old, the child was in perfect health.—(*Gazette des Hopitaux de Paris.* *Fevrier 21,* *Année 1857.* *From La France Médicale.*)

CASE XXXVIII.—The following case is reported by M. Forget. A child of the female sex, thirty-six hours old, and not voiding the meconium, in spite of the existence of an anus, apparently well formed, was submitted to my examination. On the spot occupied by the abnormal anus was observed a cavity surrounded by diverging folds which all met towards its base; this cavity entirely formed by the skin, terminated in a true *cul-de-sac*. On widely separating the nates, the folds which surrounded and in part formed this cavity were effaced, and its base was observed to become depressed and to be stretched transversely on the slightest effort of the child. The examination by the finger, practised whilst contraction was taking place, transmitted the sensation of a firm and tolerably resisting surface, and not at all that of fluctuation. The child was in other respects well formed. The genito-urinary organs were in the natural state. The urine was passed without admixture of meconium. No vomiting had taken place. The exploration of the anus with a small trocar did not give issue to any excremental liquid. The child died eight days afterwards.—(*Union Médicale. Paris.* 1850.)

CASE XXXIX.—The following, a somewhat similar case to M. Forget's, was read before the “*Boston Society for Medical Improvement*,” by C. G. Page, M. D., on the 12th October, 1857. The infant was a patient of Dr. F. Higginson of Brattleboro, Vermont.

“The child, a female, apparently perfect in form, was born May 2d, 1855. The anus presented a wrinkled depression resembling the umbilical pit, but was lined with true skin; there was no appearance of mucous membrane. An attempt to relieve by operative interference was made first with the trocar,

and afterwards with the knife, but without result. The child lived eighteen days. At the autopsy the following appearances were observed. The intestines were distended with flatus. The bladder contained a small quantity of dark-colored urine. It was drawn up out of the pelvis and lay almost entirely over the symphysis pubis, the urethra making quite a sharp curve under the pubic arch. The uterus was drawn from its normal position and rested on the posterior wall of the bladder, the whole space at the brim of the pelvis being occupied by the inflated rectum. This portion of intestine terminated in a cul-de-sac at a point just above the levator ani muscle, where the peritonæum is reflected over from the posterior wall of the uterus. At the lowest part of this cul-de-sac was an ecchymosis, a few lines in length, where the muscular coat seemed to have been divided; *the wound did not extend into the mucous membrane.* The bottom of the sac was about on a level with the brim of the pelvis, having apparently been drawn up by the excessive distention, and carrying with it the other pelvic organs."—(*Boston Medical and Surgical Journal. Vol. L VII. p. 238. Boston: 1857.*)

CASE XL.—The following case was communicated to the "*Boston Medical and Surgical Journal,*" on the 29th of December, 1857, by P. Pineo, M. D., of Queechy, Vt.

"A case of imperforate anus and rectum came under my observation last year, in this place, in consultation. A slightly wrinkled depression was perceptible where the anus should be, and, on straining, the distended bowel could be felt pushing downward. An incision was made, and the rectum reached, within about an inch of the external opening. A gum-elastic tube was introduced, and free faecal discharges obtained. The child died when about a week old. No autopsy." (*Boston Medical and Surgical Journal. Vol. L VII. p. 284. Boston: 1858.*)

CASE XLI.—M. Baron exhibited to the "*Académie Royale de Médecine,*" in November, 1835, the urinary defecating organs of a young male child, born without an anus.

In this case M. Velpeau had been called in. He incised at the place where the anus should have been, in the direction of the rectum, until he reached a cavity, from which he thought he saw meconium to flow. Bad symptoms, however, soon followed, and the child died.

At the autopsy the cul-de-sac of the rectum was found to be arrested about the level of the fundus of the bladder, but having no communication with that organ. The bladder was

found to fill the whole pelvic cavity, and was, by this distinguished surgeon, unavoidably injured in the operation. (*Revue Médicale de Paris. Décembre, 1835. p. 418.*)

CASE XLII.—M. Amussat relates the following case of a female infant, in whom the rectum terminated in a cul-de-sac, about two inches above an apparently normal anus. In the canal just below the blind sac of the rectum, a communication existed with the vagina. This exceedingly complex and difficult case was treated with complete success, and is highly interesting on account of its being the first case upon which M. Amussat practiced his peculiar method. This case, at first view, might seem to belong to my fourth, or my sixth species. In reality, however, it does not belong to either, but to the third, in which I have classed it. It will be observed that the rectum terminated in a blind sac, and had no communication whatever with the genito-urinary organs, nor with the apparently well formed anus. The anus communicated and was confounded with the vulva, being nothing more than a superfluous opening. [Vide Plate V.]

“On the 8th of September, 1835, I was summoned about midnight by an English lady, sent to me by my friend, Dr. Dubreuil. She handed me a letter from M. Déneux, addressed to M. Blandin, who happened not to be at home. In this letter M. Déneux said, ‘*the case is one of occlusion of the large intestines, in a new-born infant, the anus is well formed; the rectum communicates with the vagina, and the obstruction seems to be high up.*’

“I arrived at the house of M. B***, an Englishman, situated at the Rond-Point des Champs-Elysees, about one or two o’clock in the morning. I there met M. Déneux, who had delivered Madam B. He informed me that the child was born on the 6th of September, at four o’clock, p. m., and was consequently now thirty-three or thirty-four hours old; that no meconium had yet passed.

“The nurse told us that tepid water injected by the anus passed out by the vulva. She also assured us that she had found the diapers quite wet with urine. This seemed doubtful to us.

“This first child by a second marriage, although born at seven months, seemed to be lively and of a vigorous constitution; the abdomen was, however, hard and distended; the anus and vulva were well formed. A flexible canula introduced by the anus, readily penetrated about two inches, and water injected through it came out immediately by the vulva.

A sound passed by the vulva into the vagina readily met the canula previously introduced into the anus.

"We thought that the rectum was obstructed at the height of about two inches, and that it communicated with the vagina; that is to say, we thought we recognized a *recto-vaginal fistula*, or in other words, that the septum by which the rectum and vagina are parted, was deficient to a considerable extent.

"During the examination of the parts, which was continued some time, the nurse dipped her little finger in sweetened water, and gave it to the child to suck. After having once more carefully determined the state of the case as above given, our first care was to inform the parents of our conclusion. They understood from us that there were but two ways of affording issue to the meconium; viz—first by the anus, or the natural passage; second by the abdomen.

"We readily made them comprehend the danger of either method of operation, as well as the inconveniences attending them; and we added, that in case we succeeded in reaching the rectum by the vagina, there would necessarily be a communication between the intestine and the vagina. Notwithstanding this, the parents immediately rejected the idea of an operation after the method of Littré, and coincided with us in thinking it far better to attempt to reëstablish the natural anus, even with the inconvenience of a fistula, than to form a new one in the abdomen.

"It was then determined that we should pursue the search for the obstructed rectum. With this view I proposed dilating the anus with prepared sponge. At four o'clock, A. M., a piece of this sponge about an inch and a half long, but somewhat smaller than the little finger, with a thread attached to one end, was introduced into the anus, and kept in place by a compress and a T bandage. It was agreed that I should return about eight o'clock in the morning, to replace this with a longer and thicker piece, and that we would meet again at noon and perform an operation, if one were necessary.

"At eight o'clock I withdrew the sponge, moist and swollen; the anus was considerably dilated. I could introduce my little finger, which was easily seen by the vulva, but I was stopped higher up by a cul-de-sac. As it was doubtful whether the child had urinated, I sought for the urethra with a small, strait silver sound, without, however, discovering the passage. The little girl, however, urinated abundantly during my search, owing no doubt to the titillation of the meatus urinarius with my sound. A new sponge, a little thicker and

longer than the first, was introduced into the anus, where it was retained as already described.

"At noon, according to agreement, M. Déneux returned with me to deliberate upon the course to be pursued. I introduced M. Lebaudy to the consultation, who had expressed a desire to assist.

"After removing the sponge which had yet more dilated the anus, I introduced my little finger as deeply as possible by this opening, without recognizing anything besides the cul-de-sac already spoken of. I again easily caused the end of my little finger to appear in the vulva. Messieurs Déneux and Lebaudy also did the same.

"We then endeavored to discover the rectum, distended with meconium, with the intention of puncturing it.

"The parents were informed that in the latter case there would necessarily be a recto-vaginal fistula. Not satisfied with our exploration, although the child was already quite fatigued, I determined to introduce the right fore-finger into the anus. In this new examination, both above and behind, I found only a soft pouch, which I thought must be formed by the rectum. However, above and in front of the cul-de-sac which arrested my finger, I discovered a species of fungoid contraction, which I at first took for the contracted or obturated point of the intestine.

In explanation of what I had discovered I remarked to M. M. Déneux and Lebaudy that the body which I had touched produced the same sensation that would be produced by the effaced and soft neck of the uterus, and the opening of which was very narrow. Each of these gentlemen, on examination, recognized the same sensations, and M. Déneux told us that it must be the neck of the uterus of the little girl. A new examination was made confirming the opinion of M. Déneux. It was then established that a vagina existed, into which the anus opened *without a rectum*, and that the vulva and the anus communicated with the vagina; there were also by a strange anomaly, two openings in the perinæum in place of one, and both terminated in the vagina.

After assuring ourselves that we had to do with an extraordinary malformation, consisting of the absence of the rectum, or a part thereof, I resolved to carefully explore the entire pelvic cavity, through the walls of the vagina, at the same time introducing the fore-finger by the anus, or second opening of the vagina, with the intention of seeking for the wanting intestine. After having thoroughly explored the long walls of the pelvis in front and rear and on the sides, I recognized with some difficulty in front, the bladder, in the

rear the sacrum and the sacro-vertebral angle which I carefully examined. I sought for the pouch which should be formed by the rectum distended with meconium; feeling towards the left of the sacro-vertebral angle with the end of the finger across the posterior wall of the vagina, I felt a flattened body which escaped from the finger when it pressed a certain distance. I repeated the experiment several times, and always with the same result. Reflecting on this fact, I concluded the object which I touched must be the rectum. I communicated my discovery to my associates who coincided with me in opinion after making the same examination.

At once the diagnosis hitherto so difficult, became more clear and certain with relation to the facts already established, namely, that the vagina, larger than ordinary, appeared alone to occupy the pelvic cavity, and that above and behind, at the left of the sacro-vertebral angle was placed the extremity of the imperforate rectum.

I now felt quite relieved and freed from the difficulty presented by an operation so delicate, and I immediately resolved to put into practice the method I had long since devised for similar cases of absence of the rectum.

I described the process which I proposed adopting in this case, and which was as follows: to make an opening in front of the coccyx and behind the vaginal anus, detaching with the finger and the bistoury the posterior wall of the vagina from the coccyx and the sacrum; to penetrate as far as the cul-de-sac of the large intestine, recognizing it both by the vagina and by the natural passage; to seize it with the tenaculum; to free its attachments rather with the finger than with the bistoury, to bring it down to the opening of the skin; to open it thoroughly, allow the meconium to pass off, and then to fasten in a proper manner by interrupted sutures, the opening of the intestine to that of the skin.

Examination was again made; the diagnosis and indications seemed then so clear that they thought since the last examination that everything was wonderfully favorable to the bold operation which I had proposed. From this moment, being perfectly agreed, the operation was decided upon and the chances were laid before the parents, who comprehending the unfortunate condition of their child, were resigned to whatever plan we judged best to adopt. We did not conceal from them the dangers of such an operation. They were, however, informed in opposition to what we had heretofore told them, that if we now succeeded in effecting an evacuation of the meconium, not only would we save the child, but there would be no recto-vaginal fistula.

" During all this time the child had been placed in an emollient bath, to calm the irritation caused by such a tedious and painful but unavoidable examination.

" Everything being prepared a new examination relative to the performance of the operation having been made, and the child being placed upon the table, as if to be dissected, I made a transverse incision with a short and round edged bistoury, six or eight lines in extent behind the vaginal anus; another incision towards the coccyx gave the form of a T to the opening by which my finger was introduced, to make a passage between the vagina, on the one hand, and the coccyx and sacrum on the other; having previously placed a sound in the vaginal anus to serve as a guide to protect its posterior wall from injury. I partly tore and partly cut the cellular tissue uniting these parts. Thus I penetrated at least two inches and found the extremity of the rectum. At the moment the child made an instinctive effort, I was enabled to recognize the termination of the rectum much better than I hitherto had done by the vagina. The end of the intestine was pouch-like. My associates were as much delighted as myself upon recognizing this condition of the parts.

" I then decided to seize this pouch with a double tenaculum; drawing it towards me. I separated the intestine from the slight adhesions which it had to the surrounding parts, except on the side of the vagina, where I was obliged to use the bistoury with much caution. By this means the traction was so much facilitated that we soon perceived the intestinal pouch at the bottom of the wound, and with great satisfaction recognized the meconium oozing out by the side of the hooks of the tenaculum. I then transfixed the cul-de-sac of the rectum with a needle armed with a double ligature, and by the aid of this and the tenaculum the intestine was brought down to the surface of the wound in the skin. A sufficiently large opening having been made between the ligature and the tenaculum, a great quantity of gas and meconium immediately gushed out. After cleaning the child, who was much relieved by this evacuation, I terminated the operation in the following manner:—

" Having assured myself that the intestinal opening was sufficient, I seized with bull-dog forceps, the edges of the opening, I placed these forceps in the hands of assistants who were to make continued traction upon the intestine until the part seized upon should extend beyond the opening made in the skin. I then made three points of suture at each angle of the wound; but I noticed that the traction exerted upon the intestine made it ascend, and that it was no longer even

with the skin. I then made with more care six or eight points of suture in the circumference of the intestine, the mucous membrane I spread outside in the form of the mouth of a trumpet. [Vide Plate V. Figures. 1,2,3.] During the whole operation but little blood was lost. Injections into the new rectum were made immediately afterwards, and the child was placed in a hip bath. The linen of the child was changed five or six times in two or three hours after the operation, and the meconium was always found mixed with a marked quantity of blood which seemed to ooze out from the left angle of the wound. Several injections were made both in the artificial and vaginal anus. Poultices of flax-seed meal were applied to the wound. During all this time the little patient seemed to grow weaker. She grew pale and her extremities became cold. Hitherto she had been left in her cradle; she was now placed by the side of her mother in bed, who restored her to warmth and vigor in a short time. From seven to eleven o'clock at night she was cleansed several times, and she took a bath of ten minutes. At each cleansing the quantity of meconium and blood diminished. The breast was frequently offered to her, at first without effect; but she soon sucked strongly and finally went to sleep. There was no appearance of fever, and twelve hours after the operation there was no disturbance at the points of suture. The wounded parts preserved their redness, but the inflammation made no great progress.

"On the 9th of September, at eleven o'clock, A. M., a consultation was had with the following results: *First*, the general health of the child was satisfactory—*second*, the excretion of faecal matter was perfectly well made—*third*, there was no fever—*fourth*, the swelling around the circumference of the vaginal anus had considerably abated—*fifth*, the inflammatory redness which surrounded this part, as well as the surgical anus, had lost much of its intensity—*sixth*, the points of suture being well sustained, everything conduced to make us think the operation entirely successful.

"On the 11th of September, the wound and the surrounding parts were found to be in a satisfactory condition. The functions of nutrition and excretion were satisfactorily accomplished; in a word, the child appeared as well as if she had been born without any deformity." (*Gazette Médicale de Paris. Nov. 28, 1835—No. XL VIII. p. 753.*)

The success of the operation in the preceding case was complete, for the patient was reported as being in excellent health upwards of eight years after. (*Gazette Médicale de Paris. 1843. p. 100. Gazette des Hopitaux de Paris. 1843. p. 67.*)

Dr. Hermann Friedberg of Berlin, in his Essay on Artificial Anus, remarks, that when he visited Paris in 1854, he learned from M. Amussat that this very girl was then in excellent health, and about to be married. She was nineteen years of age.

CASE XLIII.—The following case of imperforation of the anus and rectum is reported by Mr. Waters of England, previously referred to, in which a precisely similar operation was performed, to that of M. Amussat :

" On the 10th of February, 1842, Mrs. M—— was confined of a strong male child. She was attended by a nurse, who did not discover till the following day that the child had been born with imperforate anus. I was called in on the 11th. The child had had two or three doses of castor oil before the malformation was discovered. I found it suffering intensely. The abdomen tense and painful on pressure; no vomiting. The central raphé of the perinæum was well marked, but there was not the slightest trace of an anus. Pressure over the abdomen did not produce any tension or fullness in perineo.

" As there was not any time to lose, I emptied the bladder, and made a free incision into the central line of the perinæum, and carried the wound upwards and backwards above an inch without discovering any trace of the intestine. I then had recourse to a bistoury, and succeeded in finding the extremity of the rectum, terminating in a distinct cul-de-sac, opposite the promontory of the sacrum, filled with hardened meconium, which I had some difficulty in dislodging. I got hold of the edges of the intestine which I gradually brought down, and united to the edges of the integuments by four points of suture; I did this with the idea of presenting a continuous mucous surface to the passage of fæces, and so prevent irritation of the wound, and also, if possible, to prevent adhesion by presenting two mucous surfaces to each other. The bowels were freely acted on immediately after the operation, and the abdomen fomented until pain, &c. were removed.

" The sutures were removed on the third day, and every thing progressed favorably until about ten days since, when the wound commenced to contract rapidly. I counteracted this by the regular introduction of a large bougie, and occasionally pieces of prepared sponge. The contraction only exists at the surface, the remainder of the passage is lined by the intestine, and does not appear disposed to narrow its calibre.

" April 7th. Mr. Waters writes, I may add that the case

is going on most favorably. The child's general health is very good, and there is not any difficulty experienced in keeping the opening in the integuments sufficiently dilated. The tendency to contract only exists in the mere integuments, above this the intestine preserves its natural size." (*The Dublin Journal of Medical Science. Vol. XXI. p. 321. 1842.*)

CASE XLIV.—The following highly interesting case was reported by W. G. Smith, M.D., of Vauxhall-Walk, London, April, 1846. It will be seen that the case was a desperate one, the end of the rectum having been found about three inches from the surface, but evidently without adhesions, floating; or it could not have been brought down so easily. The operation was skilfully performed, and crowned with complete success, the rectum having been brought down in the manner directed by M. Amussat, but not attached by sutures.

"A male infant, born at No. 45, Catharine-Street, Lambeth, had been in the world for two days before the parties attending it discovered the malformation described below. The child had refused the breast—had been vomiting and hiccuping; the abdomen was swollen and hard. It was obvious that the rectum lay deep, there being no indication, either by color or touch, of its situation, or of any external preparation for an anus. My friend, Mr. Smyth, of Lambeth-walk, agreeing with me that this was not a case to admit of a moment's delay, with his assistance I proceeded to search for the rectum, the child being placed on the midwife's knee, on its belly, being less likely to kick or to be troublesome in that position. Making an incision in the middle of the perineum, the sphincter was observed to be straight, its inner sides being in close contact. This was cut through, and part of the levator ani and the fatty matter beneath were divided to the depth of an inch; but I could find no indication of where the rectum lay. I enlarged the external wound in both directions, and then continued to cut cautiously upwards and backwards; and having arrived at the depth of about three inches—being able to touch the pubes in front and the sacrum behind, the wound being large enough to bury the index finger—on examining with great care, we could not discover any appearance of a rectum. However, when the child cried, a slight impetus was felt—a descending from behind—towards which, through the intervening substance, I pushed a trocar, as slender as an exploring needle; and on the second application, the escape of gas through the canula satisfied us that the

bowel had been reached. I made an attempt to enlarge the opening with a director and a bistoury, but found there was no room to act with certainty. A full-sized trocar I easily introduced ; and by pressing on the bowels, a considerable quantity of meconium was expelled ; a bougie was then left in the wound. On the next day, a probe was passed, along which the canula was easily guided into the bowel, which it reached when pressed into the external wound ; but it was only by squeezing the bowels that the contents could be made to flow outwardly.

"It was quite evident how difficult, if not impossible, it would be to make an efficient opening for the faeces to pass through this long and rather curved channel ; and how difficult it would be to prevent such an opening from closing ; and also how unlikely the power of either voluntarily expelling or retaining the faeces would be obtained. I therefore considered it expedient to bring the bowel down into the wound : for this purpose, I passed a small pair of case-forceps along the canula, and laying hold as near the opening into the bowel as I could reach, I gently and gradually pulled it down upon the canula. This being repeated two or three times, the opening into the bowel was brought down to near the mouth of the external wound. No means were used to retain it, and the injection of warm water now thrown up was returned with power. The canula remained in the bowel for ten days, the faeces being freely expelled through it by the muscles of the rectum. The greater portion of the wound healed by the first intention around the canula by granulations. The sphincter now acts well, and a good anus is formed—if anything, a little too far back ; the bowels act naturally, a bougie being occasionally passed. A month has elapsed, and no bad symptom has occurred." (*London Lancet.* Vol. IV. p. 125. 1846.)

CASES XLV.—XLVI.—The two following interesting cases of imperforation of the anus and rectum are reported by M. Amussat. In these cases he established the artificial anus in the coccygeal region, but unfortunately each case terminated fatally in a few days.

First Case.—"At seven o'clock, A. M., on the 15th day of May, 1842, Dr. Garnier, physician at Charonne, sent me a male infant twenty-four hours old. The child had passed no meconium ; its abdomen was hard and distended, and it vomited several times. I examined it attentively and observed that the raphé existed, and at the point where the anus should have opened there was an ovoid tumor or rather a longitudinal crest, several lines in length. In fine, the space contained be-

tween the tuberosities of the ischium, on the one hand, and between the scrotum and the coccyx on the other, seemed to me distended, and I perceived a very sensible fluctuation in this region. I will also add that on pressing the tumor placed at the point where the anal opening should have existed, I thought I perceived a depression apparently bounded by the two halves of this sphincter. The same sensation of fluctuation was also perceived when during expiration the left hand was laid on the abdomen, whilst pressure with the right was made in the perineum. Having made these facts clearly evident to all the assistants, I had an almost perfect conviction that the rectum, distended with meconium, terminated at no great distance from the skin.

"The child being then placed on a table suitably arranged for operation on the sub-pubic region, I explored anew the perineal region, whilst M. Boyer pressed upon the abdomen, and at the point where I perceived a sufficiently manifest fluctuation, and near the median tumor already spoken of, I forcibly plunged the blade of a bistoury from above downwards, and from front to rear. This deep incision gave vent to no matter, to my great astonishment, making me fear an error in the diagnosis I had made. But on enlarging the opening just made, towards the front, when I withdrew my instrument a black glutinous meconium flowed out. I now introduced a director, and passed a bistoury on it, and enlarged the opening towards the rear. After this incision the meconium flowed abundantly.

"The child was very feeble; it was cold and of a violet hue, and breathed with difficulty, perhaps during the operation the head had been left in a too low position. They raised the head, agitated the chest, and presently the respiration became full and the eyes moved. Meconium still continued to flow, at first of a black color, it became clearer and mixed with gases, as if it came from the small intestines. Some streaks of blood were also seen in the matter which was passed. The child was cleaned and placed near the fire to warm it, and a pledge of lint was inserted in the opening which had been made. Death supervened one or two days after the operation.

"*The Autopsy.*—It was discovered that the rectum, much dilated throughout its full extent, and especially in its lower part, terminated about one inch from the artificial anus which had been made, and that it was necessary to reach that depth to touch it with the instrument. The left lumbar colon was, as in every other case which I have observed, fixed, so to say, to the lumbar wall, and free from peritoneal coat in the lower

third, at least, of its caliber, and circumscribed within by the kidney covered with the anterior fold of the peritonæum. The mesenteric and lumbar ganglions were filled with pus. The intestinal mucous membrane was red and injected through a great part of its extent."—(*Troisième Mémoire sur la Possibilité d'établir une ouverture artificielle sur la Colon lombaire gauche sans ouvrir le Péritoine chez les Enfants imperforés. Lu à l'Académie Royale des Sciences, le 4 Juillet, 1842. Also, L'Examinateur Médical de Paris. Année 1843. tome III. p. 216.*)

Second Case.—"I was called by M. le docteur Vignola to see a female infant having an imperforate anus and rectum. In this case there was no perceptible fluctuation in the anal, perinæal and coccygeal region. An incision was made in the region of the coccyx, but not deep enough to reach the rectum. In order to penetrate to a still greater depth, a section of the point of the coccyx was made, which in this case was very much curved.

"At last, fearing that prolonging the incision, some important organ might be injured without finding the rectum, I proposed to M. Breschet, who assisted in the operation, to establish an artificial anus in the left lumbar region. The proposition was submitted to the parents of the child, but they rejected it. The operation was then continued in the region in which it had been commenced, and the rectum was found attached to the upper part of the vagina. Some meconium was evacuated, then the intestine was fixed in the skin by two points of twisted suture. The child died on the fourth day, and the parents were unwilling to allow a post-mortem examination.

"It is evident in this case, that death was caused by the severe inflammation resulting from the very long search necessarily made to discover the rectum distended with meconium."—(*Loc. cit. .*)

CASE XLVII. The following very interesting case of imperforation of the anus and rectum is related by Dr. Hermann Friedberg of Berlin, already alluded to.

"Ernest Adolph S—— was born, at full time, without difficulty, on the 31st of August 1851, at three o'clock P. M., (a first confinement.) In the warm bath which was immediately given the child, it uttered loud cries, and slept afterwards for several hours; towards evening it took several spoonfuls of chamomile tea, and slept tranquilly till nearly midnight. It awoke with cries and manifested much restlessness, drew up

its knees and tossed from side to side, bent in its thumbs and passed urine frequently. The cries soon gave place to groans, which lasted until the following day, whilst the tossings constantly increased. During the afternoon of the first of September, the child was visited by the nurse, who thought it to be suffering from colic, and wished to give it an injection. Not finding any anus, I was called to see the child.

The following symptoms presented themselves at my arrival.—The body quite well formed, was in good condition ; the extremities pale and cold, presented frequent contractions, which, began also to appear in the muscles of the face, which was pale and cold. The pulsation of the heart, very feeble, could hardly be counted. The abdomen was unusually prominent, and its teguments of a bluish color, were warm and very sensitive to percussion, which gave a tympanitic sound. The pelvic cavity seemed not fully developed ; the sciatic tuberosities were somewhat drawn together, and the point of the coccyx was considerably bent forward. The perinæal region was neither arched nor contracted, and altogether had the form of a truncated cone ; the raphé was not strongly developed, and reached to the coccyx ; there was no trace of an anus. Two or three lines in front of the point of the coccyx, there was an elevation about the size of a lentil seed, and of a cup-like form, which seemed to be formed by the skin and by the hypertrophied cellular tissue. The hollow of this excrescence reached the level of the surrounding skin, and was lined with skin of normal appearance. This excrescence could be depressed without feeling any cord beneath, as an evidence of communication with the organs of the pelvic cavity. The child continually groaned in a very feeble and gentle manner, breathed irregularly, and endeavored from time to time to put into action the pressure of the abdominal muscles. Besides the countenance had now become livid ; in the perinæal region there was manifest pressure of the rectum, while the child placed in the usual bent position in which children are held. I did not hear either by the stethoscope applied to the perinæum, or by percussion of the anterior wall of the abdomen, any sound indicating the presence of the rectal extremity filled with gas and faecal matter. Several times I pressed with the end of my left fore finger on the perinæum, towards the pelvic cavity, and at the same time made percussion with my right hand upon the anterior wall of the abdomen, but without discovering any approach of the rectum towards my fore-finger. Although from this fact as well as the narrowness of the pelvic cavity, I concluded there must be a considerable dis-

tance between the terminal end of the rectum and the perineum. I could not admit that this end communicated with the bladder or the urethra, since the urine passed, contained no mixture of faecal matter. The excrescence below the coccyx made me suspect that the rectum might be above it. As the intensity of the morbid symptoms presented by the child, warned me to empty the intestinal canal promptly, as a first attempt I plunged a lancet into the cavity of the excrescence, and then cut through its anterior edge. No evacuation of faecal matter followed, although I had pushed the lancet nearly an inch deep, toward the sacrum.

"I prescribed syrup of saffron with syrup of poppies, and cold compresses on the abdomen, and forewarned the parents of the necessity of recurring to an operation for artificial anus. Meanwhile the consent of the parents being gained, the child had to be baptized, so that it was not till an hour after noon, and consequently twenty two hours after birth, that I was able to commence the operation. The condition of the child was much worse, and a distressing hiccup had set in. The urine was evacuated immediately before the operation. With the kind assistance of Dr. Wagner, I proceeded to the formation of an artificial anus in the following manner: —The child was placed with its back on a cushion, the legs, flexed, were held asunder. I first enlarged the former incision towards the front, so that it could be penetrated with the little finger. However, as I could not thus reach the intestine, I incised the integuments of the perineum, on the median line from a point three lines distant from the scrotum, and I continued the incision longitudinally, and backward until I could easily see into the cavity of the pelvis. At the depth of an inch and a half, I then perceived a deep green tumor, tense and fluctuating, which extended from the promontory, towards the bladder. This tumor descended a little when the abdominal walls were pushed backwards towards the cavity of the pelvis. I no longer doubted that this was a part of the rectum, and I did not hesitate to seize it with the forceps and bring it down. It descended to the surface of the perineal wound, when I incised it from front to rear. At the same time the meconium gushed out, with a great quantity of inodorous gas. The child then ceased groaning, breathed deeply and regularly, and became immediately tranquil. The evacuation lasted some time before it ended; during this time the edges of the intestinal wound were firmly held by means of dissecting forceps, quite clear of the perineal wound, and afterwards were cleansed by thorough washing with cold water. Then by means of three points of

suture, I fixed the edges of the intestinal wound in the position of the normal anus, so that the mucous membrane was united to the skin of the perinæum. After cutting off the excrescence situated below the coccyx, and, giving an extent of three quarters of an inch to the perinæal wound, I united the edges before and behind this excrescence, and then fixed by points of suture, the anterior and posterior angles of the intestinal and perinæal wound exactly together. The haemorrhage during the operation was slight. While the operation lasted the child gave no evidence of pain, but preserved the appearance of one dying, up to the moment when the contents of the intestine were voided. Immediately after the operation, the expression of the countenance was sensibly ameliorated, the abdomen decreased in volume, and ceased to be hot and painful, and the extremities grew warm; all muscular contractions ceased. Half an hour after, the child took the breast for the first time and sucked heartily. It fell asleep upon the breast and did not wake for four hours, when it uttered loud cries. When its mother raised it from the bed, she found it had evacuated a considerable quantity of faecal matter, so that the dressing I placed had been displaced. The child passed the night sleeping and sucking by turns. It was found soiled every time it was taken up.

"The next morning, I found the child in a satisfactory condition, but somewhat weakened; but the wound presented no sign of inflammation. I ordered warm chamomile baths, and for the wound, frequent lotions of pure tepid water. The application of wet compresses could be of no avail because faecal matter of a yellowish brown color was constantly passing; the edges of the wound seemed perfectly united all round.

"The fourth day after the operation, the anus already presented an oval form, even when excretion was not taking place; for this function began to present appreciable intervals, lasting nearly half an hour, as the mother told me. I myself remarked an interval which lasted about sixteen minutes. After taking the child and washing the wound with injections of warm water, in the midst of slight but nevertheless appreciable dilatations of the perinæum, the wound taking a circular form, allowed a small quantity of half liquid, yellow faecal matter to pass rapidly, and its contact did not seem to cause any pain to the child. Immediately after new faecal matter passed from time to time without any perceptible motion of the perinæum, or the edges of the wound. After which the edges gathered together until the wound recovered its oval form, the longitudinal diameter

corresponding to that of the perineum. About sixteen minutes then passed before the signs above mentioned, announced a new evacuation. There appeared no tumefaction or redness of the edges of the wound, and from this time, the posterior angle only from which I had cut the excrescence, secreted a small quantity of matter containing a few purulent globules.

"The sixth day after the operation two sutures were so much loosened, that I removed them. As the others caused no suppuration, and the pinkings did not seem enlarged, I left them untouched; three days after, I removed them entirely. Some of the pinkings lasted four or five days, and healed without any appreciable suppuration. At this moment cicatrization was complete in the whole extent of the wound. The form of the anus rounded no more, and the edges ascended a little towards the rectum. The power of the child to retain its stools increased to such a point that the evacuation of semi-liquid yellow faecal matter occurred only every half hour, and sometimes only every hour. Four weeks after the operation, the evacuation ceased simultaneously with a manifest contraction of the anus; and afterwards faecal matter of good consistence passed only three or four times in twenty-four hours. The child prospered and thrrove, so that at eight months old it could stand alone, and could pronounce some words.

"The anus, with the exception of some slight scars resulting from the sutures, presented no trace of the operation, and seemed altogether like a normal anus. I had no more occasion to visit the child, and learned what follows from the mother.

"During the ninth month two incisor teeth were cut, accompanied with violent morbid symptoms, especially a bronchitis which lasted eight days; and enteritis. At the beginning of June, 1852, the cutting of an upper incisor tooth was accompanied with frequent cough, and engorgement of the sub-maxillary glands. These phenomena persisted in spite of medical treatment, and with an astonishing emaciation of the child, until death occurred on the twenty-fourth day of June, 1852. Consumption of the glands, and convulsions were stated to be the causes of death. No autopsy was made." (*Recherches Cliniques et Critiques Sur L'Anus Artificiel.* In *Archives Générales De Médecine de Paris.* Juillet, 1857. p. 50.)

CASE XLVIII.—Schultz reports the case of a child that was born entirely destitute of an anus, or any sign of one.

The usual operation was performed, but nothing except some blood was discharged, and the child died on the following day.

At the autopsy, it was discovered that the rectum, for the distance of *nine fingers' breadth*, was completely obliterated, being entirely without a cavity, and that it was twisted like a rope, down to the place which the anus should have occupied. (*Miscellanea curiosa sive ephem. acad. natur. curiosor. recur. I. ann. III. observ. 2. p. 5.*)

CASE XLIX.—Lieutaud mentions the case of an infant in whom the rectum terminated in a cul-de-sac, and by a filament at the upper part of the sacro-vertebral angle. There was no trace of a normal anus. (*Bulletin de la Société Anat. Paris. Mai, 1839. p. 86.*)

CASE L.—Von Ammon observed in a four or five months' foetus an imperforation of the anus and rectum. In this case the rectum terminated in a cul-de-sac high up, and was thence continued down in the form of a rudimentary cord, and attached to the sacrum. [*Vide Plate IV, Figure 2.*]

This malformation Von Ammon considered to be the result of an arrest of development. But might not the cord-like projection have been an obliteration of this portion of the rectum, and the result of rectitis during foetal life? (*Die Angeborenen Chirurgischen Krankheiten des Menschen. S. 44. Berlin: 1842.*)

CASE LI.—The following case was communicated to the "*Boston Medical and Surgical Journal*" by S. Mitchell, M.D., in a letter dated Cameron Mills, N. Y., May 21st, 1851.

"I was called on the 16th instant to see an infant son of J. L. F., which was three days old. Upon examination, I discovered the nates to be perfectly adherent; and, instead of the natural fissure between them, there appeared to be only a slight ridge, which was continuous with the raphié of the scrotum. There was not the slightest trace of the anus to be discovered; but by placing the finger upon its region, and making firm pressure while the child struggled or cried, the bowel could be felt to press upon the finger. The child appeared otherwise to be perfect, and I learned from the nurse that it had been lively up to the evening before, when it began to be so drowsy that it was with much difficulty it could be aroused, even sufficient to open its eyes. At the time of my visit, the stupor was still more profound, with a purplish and mottled state of the skin; eyes sunken and countenance pinched;

denoting that the vital powers of the system were giving way, probably from the irritation arising from the retained secretions in the bowels. I gave it as my opinion to the parents, that, on account of its weakness, it was quite probable that an operation would not prevent a fatal termination ; but, of course, its only chance for life was in operating. They decided for me to operate. Accordingly, with the assistance of my brother, Dr. John Mitchell, I proceeded as follows. The child was placed upon the knees of an assistant, with its face downward, and the nates exposed. I then made an incision, with a small scalpel, seven or eight lines in length, commencing a little anterior to the os coccyx, cutting through the skin and a firm ligamentous growth immediately beneath. I now used a long narrow straight bistoury, which I carried up in the direction of the curve of the sacrum about one and a half inch, when it entered the bowel, which was followed by a copious discharge of gas and meconium. There was not more than one or two teaspoonfuls of blood lost during the operation, and yet, at its termination, I found my little patient was sinking rapidly from the shock upon the nervous system. Various remedies and expedients were resorted to, to arouse him, but without success. His gasps for breath continued to grow less and less frequent, until he ceased to breathe ; but, as his heart continued to beat freely, my brother commenced the use of artificial respiration. I could feel his heart beat stronger and faster every time his lungs were inflated ; and, after using it for five or ten minutes, we had the satisfaction of again seeing the little fellow catch for breath, which he continued to do more and more frequently until natural respiration was established. I mention this as an example of the efficacy of artificial respiration, when properly applied. The child, undoubtedly, was in a state of syncope, so profound that all the usual remedies had failed to arouse him. A moderate dose of castor oil was now ordered to be given, to sweep out the bowels, and a few drops of brandy to be taken at short intervals in a little sweetened milk and water, until he should rally ; and a tent, smeared with simple cerate, to be constantly kept in the artificial orifice to prevent its union.

“ Saturday, 17th.—Less stupor. Bowels have moved several times since last evening, but he still remains quite feeble.

“ Sunday, 18th.—Sank and died from inanition.

“ I have every reason to believe that had the operation been performed earlier, before the vital powers began to give way, it would have been successful.” (*Boston Medical and Surgical Journal.* Vol. *XLIV.* p. 376. *Boston :* 1851.)

CASE LII.—Mr. Redfern Davies, of Birmingham, England, reports the following case of imperforate anus and rectum:

"The mother of the child, a healthy primipara of twenty-eight years of age, was delivered of it at full time, on December 19th, 1857. The child seemed to all appearance at birth well and flourishing; but on the third day, no meconium having come away, the medical attendant elicited, in answer to his inquiries, that there existed some malformation about the child's bottom, which the nurse explained not having seen before, owing to her bad sight. An imperforate anus was at once found to exist.

"On being summoned, December 22d, by my friend, Dr. Cornelius Suckling, under whose care the child was, the following appearances presented:—a well formed male child; seems weakly, but is tranquil. Urine quite clear, and made freely. On examining the perinæum no anal aperture is seen; the skin passes continuously from side to side; median raphé very marked and distinct. In the site of the anus the integument puts on a different color to adjacent parts; it is darker and has a peculiar appearance, simulating the usual anal wrinkles. On examining with the finger, and at the same time pressing upon the abdomen, or when the child cries, it is thought that in the direction of the rectum a fluctuation can be made out; the sensation is, however, by no means defined or certain. In all other directions an elastic, firm and resisting structure is evident. The bony outlines of the pelvis natural. The abdomen is bulging, hard and tympanitic on percussion.

"*Diagnosis.* Absence of anus and of a portion of the rectum, probably from one to two inches. Rectum does not open into viscera.

"An incision which upon measurement, was found to be five-eighths of an inch, was commenced in the central line of the perinæum, down to the coccyx, in the part alluded to as marking the sight of the anus. Introducing the little finger, the sensation of the end of the rectum, though very distant, is now certain. Guided by that sensation, by the curve of the sacrum, and by the tuberosities of the ischium, the incision was carried by very gentle progression, cutting fibre by fibre, to a distance of two inches and a quarter, as was ascertained by actual measurement both at the time and afterwards. The extremity of the gut being satisfactorily recognised, an incision was made into it, and a grooved director pushed into the gut. An immediate escape of gas, which was very perceptible both to the ears and noses of the bystanders, as also by the welling out by the side of the director of meconium,

announced that the rectum was opened. There was but very little loss of blood, estimated by the nurse as under a teaspoonful. A dose of castor oil administered directly; a small oiled tent introduced into the wound; the child was put to bed.

"*Vespere*, 10 P. M.—No more meconium has passed. Child seems easy.

"*December 23d.* 10 A. M.—No meconium passed; child refuses the breast, seems fretful and ailing. On withdrawing the tent and introducing the finger into the wound, a few coagula are found at the top, closing the opening into the gut; on their being removed, a fresh escape of flatus and meconium, which now passes easily through the wound. He was ordered a purge of jalap.

"*Vespere, same day.*—Child seems easy, but refuses nourishment; meconium comes away; urine clear.

"*December 24th.*—Meconium and faeces come away easily. Child refuses nourishment.

"*Vespere.*—About the same.

"*December 25th.*—Died about noon.

"*Post Mortem.*—Body of a dwindle appearance. Upon opening the cavity of the abdomen, no signs of peritoneal or inflammatory mischief could be anywhere traced; the contents appeared quite healthy, and the anatomical relations of the viscera as usual, save that there is a deficiency in the rectum, which is found to terminate in an infundibuliform *cul-de-sac*, about the middle of the sacrum. Upon opening it, it is found to contain healthy faeces; and presents about one fourth of an inch posterior to the *cul-de-sac*, on its lower surface, an aperture three eighths of an inch in diameter, through which a probe being introduced, passes out through the artificial anus in the perineum. The bladder is found quite natural. The rectum, as before said, terminated in a *cul-de-sac* of an infundibuliform shape, from which is prolonged, for about three fourths of an inch, a fibrous cord. No muscular fibres could be found corresponding to the anus, though looked for, even by the microscope."—(*Edinburgh Medical Journal.* No. XXXIII. March, 1858. p. 808.)

CASE LIII.—Petit gives the case of a child in which both the anus and the rectum were imperforate. A deep incision was made with the lancet into the integument of the part where the anus ought to be, and the wound thus made was dilated with the finger, yet no rectum could be discovered. Three hours afterwards, a soft and dark tumor, the size of a plum, presented itself at the opening and completely concealed it. This tumor was punctured, the meconium discharged, and the

child much relieved; yet it did not entirely rally, but continued to linger on, suffering more or less, until the eighth day, when it expired.

At the autopsy Petit discovered that the tumor was the posterior part of the superior portion of the rectum, which had been forced down into the incision, by the straining efforts of the child to evacuate its bowels, and that it formed a kind of hernia. The inferior portion, or lower third of the rectum was found obliterated, without the sign of a cavity and like a hard cord, and into which a very fine pointed probe was with much force and difficulty introduced.—(*Mémoire de l'Académie Royal de Chirurgie. tome II. p. 237. Paris : 1781.*)

CASE LIV.—Saviard reports the case of a new-born child, which presented an imperforation of both the anus and the rectum. There was no sign whatever of an anus, and the rectum terminated in a cul-de-sac. He plunged a lancet into the place which the anus should have occupied, in the direction of the rectum, and after penetrating to the depth of two *finger's breadth* it entered the blind sac, and simultaneously with the withdrawal of the instrument, the meconium flowed out abundantly, and the child was saved. (*Op. cit.*)

CASES LV—LVI.—Heister observes that he saw two children, in both of whom the anus was imperforate, and the rectum completely closed and terminating as high up as the superior part of the sacrum. The operation in each case was performed with a trocar; but the result in both cases was death. (*Institutiones Chirurgicae, P. 11, Sec. V., Chap. CLXIII. Amstelædami, 1739.*)

CASES LVII—LVIII.—Adriani reports having seen two infants, in both of which there was imperforation of the anus, the rectum terminating in a blind sac. In one of the children a trocar was plunged in the direction of the rectum to the depth of the *little finger*, the cul-de-sac was reached and meconium flowed, but the child died. The other one died without operation. (*Ruysch, Adversaria Anatomica Decad. II. c. 10. p. 43.*)

CASE LIX.—The following case of imperforation of the anus and rectum is recorded by Wolf, who after having thrust a large lancet into the perinæum a few lines in front of the os coccygis, to the depth of two inches, failed to reach the meconium. He afterwards, however, with a pharyngotomus succeeded in piercing the end of the rectum, and letting out

its contents. What was very remarkable in this case, the malformation was not discovered till the evening of the twelfth day after the birth of the child, it having had no evacuation from its bowels during all this time; when it was attacked with vomiting, hiccup and convulsions, the abdomen was distended, hard and painful upon pressure, and there was great prostration of strength. The operation under these unfavorable circumstances was performed on the thirteenth day, and subsequently by the use of enemata and tents, the child ultimately recovered. (*Langenbeck, Neue Bibliothek für die Chirurgie und Ophthalmologie. Band III. S. 231. Hanover, 1813—22.*)

CASES LX—LXI.—Professor James Jones, of New Orleans, previously alluded to, reports the two following unfortunate cases of imperforation of the anus and rectum.

First Case.—“My next case,” says Dr. Jones, “was in consultation with my friend Dr. Richard Bein, on the 11th of August, 1856. The little boy was born on the ninth, presented the usual symptoms, and Dr. B. made an attempt, in company with Dr. Hunt, to cross the river during the gale of August the 10th, to relieve him by an operation; but after several hours drifting about they returned home without being able to get across. Dr. H. being unwell, I went over next day, with Dr. Bein. We found the child in great distress, the abdomen very tumid and tenet, with constant vomiting of a yellowish thin fluid. On examination, the anus being imperforate, we proceeded at once to open it with a bistoury, which, after being carefully introduced to the depth of an inch and a quarter, gave issue to a large quantity of meconium. The accumulated cathartics produced so much purgation that Dr. B. was compelled, during the evening, to administer an anodyne mixture to check their debilitating operation.

“On the twelfth we introduced a caoutchouc tube to keep the passage open. The abdomen was greatly reduced, the child sucked and swallowed, and we hoped that it would continue to improve.

“On the 19th I saw it again. The operations had ceased; the abdomen was again hard, although not so much inflated. The opening having contracted, we dilated it by introducing the dressing forceps and gently spreading the blades; the orifice was again kept dilated with a gum catheter. The general appearance of the child was wretched; it moaned

and whined continually, never slept, rejected everything, and exhibited signs of peritoneal inflammation of a fatal tendency. By the use of camphorated mercurial ointment to the abdomen, emollient enemata, and two or three minute doses of calomel, it revived slightly and had a few operations, urinating as usual."

"On the 23rd I saw it again by the request of Dr. B. and although evidently sinking, it lingered until the 25th.

"On the 26th the body was opened by Dr. Bein, myself, and Dr. F. Poland, at that time a student of medicine. The intestines were somewhat distended, and were also generally adherent by organized bands of lymph. Internally there was much disseminated inflammation. The rectum terminated in a pouch, which being doubtlessly softened in its attachments by inflammation, peeled off entire from the pelvic surface of the perineum. I have it now in alcohol. The friends were waiting to bury the infant, and we did not examine into the state of the sphincter or of the other muscles."

"It was very evident that in this case enteritis and peritonitis were the causes of death. The only question being how they should have occurred, when the operation had been so successfully performed at so early a period.

Second Case.—"On the morning of the 17th of November, 1857," says Professor Jones, "I was called, before day, to see Mrs. R., Franklin Street, in labor. I found, on my arrival, that she had been delivered several hours previously of one child and that she was much exhausted by her efforts to expel another. I found the membranes of the second ovum unruptured, and felt the hand and arm presenting through them. I immediately ruptured the bag, pushed up the right hand and arm, brought down the head, and in three pains it was delivered. I felt the chord prolapsed and pulseless as I pushed up the hand. The child was born in five or six minutes after I commenced to interfere, but it was asphyxiated, without the slightest pulsation about the heart, and nothing could revive it.

"On the 18th, in the morning, the surviving child had passed nothing from its bowels, although unfortunately, it had taken considerable quantities of castor oil, olive oil, and all of the usual teas children are compelled to swallow. Its belly was already tumid and tense the enlarged veins showing the intestinal obstruction. On returning, several hours afterwards, with the proper instruments, I found the child worse; it was very restless, evidently in pain, and had

rejected latterly, every thing put into the stomach. It had never attempted to suck. Dr. Stone being in the vicinity, we examined the case together, and found the anus completely imperforate. A small incision made unsuccessfully with the bistoury, was repeated afterwards with the lancet, which being driven to the depth of more than an inch, was followed by a copious evacuation of meconium and flatus; the belly subsided immediately; the vomiting ceased, and the child did not give much indication of pain; but refused to suck; swallowed with difficulty, and continued to decline.

"On the 20th, a gum catheter was introduced, after extending the puncture, more meconium followed. In the evening of the same day, the child died.

"On the morning of the 22nd, M. Capdevielle and my son made a post mortem examination, and brought me the intestines. The peritonæum was inflamed; the intestines somewhat distended, and the colon very much inflamed, and filled with a mixture of meconium and of blood, which probably came from the incision I made last, in enlarging the opening. The rectum terminated, as in the case with Dr. Bein, in a pouch, on the pelvic side of the perinæum. The incision was through cellular membrane, and there was no appearance of a sphincter." (*New Orleans Medical and Surgical Journal.* Vol. XV. Pp. 99, 101. 1858.)

CASE LXII.—The following interesting case was communicated to the "*Boston Medical and Surgical Journal,*" by Dr. Thomas P. Hill, of Sanbornton, N. H., in a letter dated December 4th, 1839.

"Some time in August last I was called, in the night, to visit Dr. Webster's family, of Hill. Mrs. W. had been confined, the previous afternoon, of a male child, and was then comfortable. Nothing unusual appeared in the child at birth; its exterior was perfect, so far as had been discovered, and its features were uncommonly beautiful. Very soon, however, it was seized with spasms, attended with a livid appearance over the face and neck, and in some degree over the whole body, more especially when anything was put into its mouth. The nurse told me, on my arrival, that she believed the child could not swallow. Finding nothing in the mouth to obstruct the passage to the throat, and in order to satisfy myself as to what the nurse had stated, I directed her to give a teaspoonful of warm drink. The child made no effort to swallow, but was immediately convulsed, accompanied with the lividity above mentioned, and the drink which

had been given was returned by the mouth and nose, mixed with bloody mucus. Supposing there might possibly be some spasmody stricture of the œsophagus, and that gently stimulating the rectum would remove the difficulty, I advised an injection of warm water per anum. But in attempting to comply with the direction, no outward passage could be found; not even the vestige of an anus was seen; all was as smooth as the hand, except the raphé, which extended from the scrotum to near the point of the coccygis. All the circumstances of the case considered, it was not thought advisable to attempt any operation, and I took my leave, expecting soon to hear that the child was dead. It remained, however, much the same till the next day; it would sometimes lay quiet, as though nothing ailed it; and the anxious parents, desiring that something might be done, if possible, to relieve the little sufferer from its impending fate, sent for me again, and two others of the faculty. The result of this consultation was, that an attempt be made to open a passage into the rectum. An incision was made in the integuments, about an inch long, half way between the scrotum and coccygis, and an abscess lancet introduced about an inch and a half in the direction to pierce the lower portion of the gut, if it were in its natural situation. No portion of the intestine was reached, and, of course, the operation failed—and the poor little thing was again left to its fate. It lingered a day or two, without any change of symptoms, and expired.

Post-mortem Examination. The abdomen was considerably swollen, from gaseous distention of the intestines. No other abnormal appearance was noticed in the alimentary canal, except at its extremities. On dissecting out the lower portion of the track it was found that the rectum, instead of pursuing its natural course down the concave surface of the os sacrum and coccygis, took an anterior direction towards the bladder, and terminated in a cul-de-sac upon the posterior portion of the neck of that viscus. The bladder could be inflated from the rectum by means of a blow-pipe, though the communication could not be traced by a common probe.
[*Vide Plate IV, Figure 3.*]

“The condition of the upper end of the tube was still more remarkable. The pharynx terminated in another cul-de-sac about two inches below the fauces. The œsophagus, tracing it upward from the cardiac orifice of the stomach, diminished in size as it ascended, till it finally ended in a few scattered fibres, passing through an opening in the posterior part of the trachea, to be inserted upon its inner surface.” (*Boston Med-*

ical and Surgical Journal. Vol. XXI. p. 320. Boston: 1839.)

The following cases all belong to this the third species, and should be thus classed. Their history and description, for obvious reasons, will be given in the chapter on *Abdominal Artificial Anus.* [Vide Chapter XI.]

CASES—CCLV—CCLVI—CCLVIII—CCLXI—CCLXIV
CCLXV—CCLXVI—CCLXIX—CCLXX—CCLXXI—
CCLXXIII—CCLXXIV—CCLXXVI—CCLXXVIII—
CCLXXX—CCLXXXI—CCLXXXII—CCLXXXVI.

CHAPTER V.

THE FOURTH SPECIES OF MALFORMATION.

S E C T I O N I.

DESCRIPTION.

THIS species of malformation is characterized by the anus being usually quite normal, whilst the rectum at a variable distance above it, is either obliterated, partially or wholly absent, or occluded by a thin or thick annular membranous septum, like a diaphragm—presenting, as it were, a double, or an external and internal cul-de-sac. [*Vide Plate VI, Figure 1.*]

Sometimes the rectum is intercepted at several points by transverse membranous septa; its diameter, however, at these points remains undiminished, and the canal, with the exception of these partitions, being perfectly normal.

Dr. Friedberg, of Berlin, mentions a case in which the walls of the rectum some distance above a well-formed anus, were adherent at two points, and the canal at these places obliterated. [*Vide Case LXXXIV.*]

Professor James Jones, of New Orleans, saw a case in which the anus was normal, but the rectum a short distance above it, was entirely wanting. [*Vide Case LXXXVII.*]

Schenck relates a case in which the parietes of the rectum above a natural anus, were closely united at two places, as if glued together; and at two other points the rectum was occluded by two annular membranous septa. [*Vide Case LXIII.*]

M. Voillemier reports a case in which the rectum, above a

natural anus, was divided by four membranous partitions. [Vide Case *LXXXIII.*]

The late and lamented Dr. Bushe, of New York, mentions a case in which the rectum, above a normal anus, was obstructed by two membranous partitions. [Vide Case *LXXXII.*]

Goeschler, of Prague, reports a similar case to that of Dr. Bushe. [Vide Case *XCII.*]

The situation of the obstruction or membranous partition will be found to vary from one half to two and a half inches from the margin of the anus. It is sometimes quite delicate, thin and semi-transparent, and easily perforated or ruptured, by the probe or the finger; at other times it is thick and hard. Trœn relates a case in which the ano-rectal septum was one inch thick, and of the consistence of horn. [Vide Case *LXVII.*]

Engerran witnessed a case in which the rectum, above a well-formed anus, was indurated, puckered and drawn into a knot. [Vide Case *LXVI.*]

In some instances, at the normal situation of the anus, a wrinkled depression like the umbilical pit is observed, but when you come to examine carefully and separate the wrinkles you will find no anus there, but merely a slight depression. Such cases must not be confounded with those under consideration. [Vide Cases *XXXVIII—XXXIX.*]

From the preceding observations it will clearly appear that a well-formed anus does not by any means prove that the rectum is normal, that it is not obstructed, or that it is not partially or wholly wanting. This species of malformation presents a form, therefore, which is at once well calculated to deceive the most experienced, unless an exploration is made. The circumstance of the normal state of the anus in these instances is the more serious, because it never leads to the suspicion that an obstruction of the rectum exists, but quite to the contrary—thus leaving the nurse or the accoucheur, or

both, in a fatal security, till aroused sooner or later by grave symptoms presenting themselves.

Every nurse and accoucheur should be impressed with the importance of making a visual and tactile examination of the anal region of every child which fails to pass meconium or faecal matter within the first twelve hours after birth, and not to wait for urgent symptoms to present themselves before this exploration is made. The examination may be made by either introducing the extremity of the little finger well oiled, an elastic bougie, or a probe, into the anal orifice; or by an injection of a little warm water, which if it meets with an obstruction will be immediately returned. An ignorant nurse, however, may here be deceived herself, and deceive others. She will declare that the child's fundament is natural, and that she has given the child several injections into its bowel, when perhaps not a drop of the fluid has passed from the syringe, the end of the pipe having been pressed against the obstruction in the bowel which closed it, the fluid passed by the piston as it was slowly pressed down, and accumulated at the head of the cylinder, without a drop passing out. This can be verified at any time by filling the cylinder with a fluid, and placing the finger firmly against the end of the pipe, and then slowly forcing down the piston.

The exploration in these cases should be conducted in the same manner as recommended in the preceding chapter. The finger inserted into the anus can generally at once detect the membranous variety of this species, by the fluctuation, provided sufficient meconium and gas have accumulated, especially during the straining efforts of the child to defecate; sometimes by these efforts the distended membrane is forced down so low as almost to be visible, and by dilating the anus a little may be brought to view. When seen, the protrusion is of a dusky color. The small speculum ani can here be used with advantage to dilate the anus and canal, and enable the

surgeon to see the obstruction. He can also in these cases operate through this instrument.

From the number of recorded cases of this species of congenital malformation, I am naturally led to the conclusion that it is by no means uncommon.

Prognosis. Should the obstruction of the rectum consist of a mere superficial membranous septum, the treatment would be simple and easy, and the success highly probable; on the contrary, however, should it consist of a dense and thick membrane, a partial or total absence of the rectum, or a puckered and indurated condition of its parietes, the case would be infinitely more serious, and the success of the treatment much less certain.

S E C T I O N I I.

THE TREATMENT.

1. If the obstructing membrane is thin and friable it may be broken down with a probe or with the little finger. Should it, on the contrary, be firm and unyielding, it should be punctured with the sharp-pointed bistoury, wrapped with thread or a narrow strip of linen, to within a few lines of its extremity, and cautiously carried into the passage on a grooved director, or glided along the finger. This puncture should then be freely enlarged crucially with the probe-pointed bistoury. The opening thus made should be kept free by the frequent introduction of the little finger well oiled, or by tents of lint besmeared with cerate, and afterwards dilated by elastic bougies; or the silver or elastic tubes should be used, as already recommended.

2. When the ano-rectal partition is very thick and hard, the method of M. Amussat is the best—that is, after having dilated the anus, or slit it at its posterior part, and on its side, to

detach the mucous membrane, draw down the rectum from the pelvic cavity, cut off its inferior extremity above the septum, and then suture it either to the sphincter or to the skin. This method should always be adopted if it possibly can be done, as the tendency to contraction at the situation of the occlusion is always very great in these cases. If this is impossible, the end of the rectum should then be opened as by the ordinary method and treated accordingly.

3. In an interesting case of imperforate rectum accompanied with a normal anus, M. Amussat operated, as if no anus whatever existed, and as if the rectum was completely deficient throughout the entire extent of its anal extremity, by cutting backward and drawing the rectum not downwards to the anus, as he at first advised, but directly backwards. This case I have translated entire, together with his reflections upon it. [Vide Case LXXXV.]

4. M. Amussat is of opinion that in these cases the mere destruction of the septum, however thin and delicate it may be, is entirely insufficient, and always fails in consequence of the difficulty of keeping an opening above the anus patulous—and “*that no case can be cited in favor of that method.*” In this, however, M. Amussat is egregiously mistaken, as I shall now prove by citing a number of cases in favor of it, many of them having been successfully treated for years before any other method was ever thought of.

5. When the rectum above the normal anus is absent, or its entire cavity obliterated, or from some other cause the natural anus cannot be brought in communication with it, an artificial anus should be formed in the abdomen. [Vide Chapter on *Abdominal Artificial Anus.*] .

SECTION III.

CASES AND REMARKS.

CASE LXIII.—It is said by Scheuck, that Jessen saw a female infant whose anus was perfectly formed, but when a sound was introduced into the rectum the firm resistance of a membrane was perceived, a short distance above the anus. This membrane was incised and a small quantity of thick matter was discharged. No injection, however, could be made to enter the cavity of the rectum, and the child died, when sixteen days old.

At the autopsy it was observed that the walls of the rectum were adherent at two points, and at two other points the rectum was closed by two annular membranous septa. The language of the author is, that at the post-mortem, he found that "*Rectum intestinum bis lateribus concreverat, bis orbiculari intersepiebatur membrana.*" (*Schenck. Observationum Medicarum, novarum, admirabilium, et monstrosarum. Lib. III. Observ. V. p. 384. Frankf. 1609. Folia.*)

CASE LXIV.—Wagner examined an infant who had an imperforation of the rectum, but whose anus was so well formed that he was enabled to introduce an ordinary sound to the depth of one inch and a half, when it met with such resistance as made it impossible to push it up any further. The child died on the tenth day after its birth, no operation having been performed.

At the autopsy it was discovered that that portion of the rectum which was beyond the obstruction, was filled with gas and faeces, and was reflected upon the superior part of the sacrum, to which it was firmly attached. (*Commer. litterar. p. 364. Norimberg. Année 1734.*)

CASE LXV.—It was observed in a child, having a normal anus, but an imperforate rectum, that it had discharged nothing from its bowels for two days after its birth, and that its abdomen was painfully distended. Attempts were made to administer an enema, but the fluid returned by the anus as fast as it was forced out of the syringe. Petit now saw the child, and to recognize the nature of the defect, introduced into the anus a flexible sound with a small ball on the end of it. This instrument could be easily inserted one inch, but no

further. Petit introduced his finger by the side of the sound and felt a rather thin membrane above the sphincter, which completely obstructed the cavity of the rectum, transversely. By means of his *pharyngotomus* inserted up to the obstruction by the side of his finger, he incised the membrane which offered but little resistance. The child at once discharged the meconium, and for the two months that it lived afterwards, continued to discharge its faeces freely. The child did not die of the operation nor any anal disease.

Petit observed, that in this case the *sphinctores ani* muscles existed, were normal, and performed their functions well; for whenever he inserted his finger into the anus, which he had frequently done, he always perceived by the touch, the same sensitiveness existing, and the same resistance which are perceived on introducing the finger into the anus of any child. (*Mémoire de l'Académie Royale de Chirurgie, tome 11.* p. 250. Paris: 1781.)

CASE LXVI.—A child was witnessed by Engerran, in which the anus existed, but the rectum was found to be imperforate. Nothing had passed its bowels for four days, and it vomited. A sound, which was introduced, came in contact with a hard body. This substance was pierced with a sharp-pointed triangular probe, and immediately a large quantity of faecal matter was discharged. The faeces, however, soon gradually accumulated again and the child died one month afterwards.

At the autopsy it was observed that a part of the inferior extremity of the rectum was indurated, pucker'd, and drawn up in a knot, like the umbilicus of the adult. (*Mémoire de l'Académie Royale de Chirurgie, tome 11.* pp. 253, 254, 255. Paris: 1781.)

CASE LXVII.—Tricen mentions the case of a female child who had an imperforation of the rectum, but whose anus was well formed. On introducing a sound it soon met with firm resistance. The opposing substance was incised, but the child died in three days.

At the autopsy it was discovered that the rectum was completely obstructed about a *finger's-breadth* above the anal orifice by a membrane which was ten lines in thickness, and almost the consistence of horn. (*Observationum Medico-Chirurgicarum.* p. 60. *Ludg. Bat.* 1743.)

CASE LXVIII.—Smellie relates the following case:
“Several years ago, I delivered a woman of her first child.

When I called next day, the nurse told me that she had got no stool, although she had given several times the oil and syrup, and she was afraid there was no passage at the fundament, she having tried to introduce a stalk of parsley and butter. I inspected the part, and intubating my finger, introduced the same a little way into the anus; but plainly found a smooth obstruction about an inch or less from the entry.

"I informed the father of the case, and the danger the child was in, unless an artificial opening was made, and advised him to send for the surgeon of the family; on which Mr. Gattaker was called. After he had examined and found the same, he advised, as the case was uncommon, to send for Mr. Middleton. They were of the same opinion with me, that it was right to try to make a perforation immediately, for although the success was uncertain, yet if the attachment was slight, it might succeed. It was then agreed to perform the operation with the trocar. Mr. Middleton sent for his, as it was of a larger size than common. Mr. Gattaker introduced the instrument, and pushed the point and sheath through the adhesion in a line, as near as he could judge, along the common course of the rectum. No meconium appeared, or followed on withdrawing the instrument. After this he introduced a large bougie, which went up a great way. We called next morning, and to our great satisfaction observed some meconium come down on extracting the bougie. Another somewhat larger was again introduced; the child now seemed to be in a fair way of doing well; but next day the nurse showed us a small swelling on the upper and back part of the right parietal bone, which was turning livid, and indeed had not been observed by me at the delivery. On examining the tumor, we found a round opening in the bone about an inch and a half in diameter, and some of the brain pushed through it; but this could not be reduced, and no doubt was begun to mortify, for the child died next day."—(*A Collection of Prenatural Cases and Observations in Midwifery. Vol. III. Collect. XLVI. p. 461. London: 1779.*)

CASE LXIX.—Mr. Pinkstan, a surgeon of London in 1754, reported the following case, of this species of malformation.

"*Tuesday evening, May 7, 1754,* I delivered M. K. of a female child. Next morning the nurse told me that the child had no stool, although she had used all the common methods to procure one; besides, she saw no fault at the fundament.

"On examining, I imagined the same; but after introducing a probe about half an inch, I met with a firm and solid resistance.

"I then told the mother the necessity there was for performing an operation on the child; though not without expressing some doubt of its success. Having obtained her consent, I cut about half an inch into the resisting substance, and finding that none of the faeces followed, I enlarged the external orifice, and went about an inch deeper.

"Seeing at last nothing issue out but a little blood, I introduced my finger, and found a resistance that made me despair of succeeding in any further attempt of that kind, and I dressed up the wound.

"The child had that night stercoacous vomitings, and these continued till its death, which happened on the twelfth in the morning.

"After much entreaty, I was permitted to open the child, when I found the rectum callous and imperforate as far as the last vertebra of the loins, which showed the defect was absolutely incurable.

"In cases, however, of this kind, I think a cure should always be attempted."—(*Smellie. op. cit. p. 464.*)

CASE LXX.—The following case was reported on the 20th of May 1791, by Edward Ford, Esq., Surgeon to the Westminster General Dispensary.

"March 6th, 1791, I was desired to see a male infant, two days old, who was supposed to have an imperforate rectum. He appeared to be a strong healthy child, well formed in every other respect, had taken nourishment the day before, and as he exhibited externally no marks of mal-conformation, when examined at his birth, it was not supposed that he labored under this defect till it was found that no evacuation had taken place through the intestines, that he rejected his food, and vomited up every thing he had taken.

"When I saw the child he was continually vomiting; the matter thrown up was of a dark yellow color, and foetid, and the abdomen was tense and swelled; in other respects he looked healthy, had voided his urine properly, and the anus was naturally formed as far as regarded its external appearance.

"I endeavored to introduce my little finger through the sphincter ani into the rectum, but found an uncommon resistance in the first attempt, the parts not admitting of being dilated as usual; and when this difficulty was with some force overcome, at the distance of an inch from the external parts, there was an obstruction to be felt, which resisted every effort I made to penetrate it, first with the nail of my finger, and afterwards with the blunt end of a probe.

"The first consideration which offered to my mind, was to perforate the obstruction with a small trocar; and in order to do this as safely as possible, a small catheter was introduced through the urethra into the bladder, which served as a direction to avoid wounding those parts in the operation. The canula of the trocar was then introduced into the anus, under my finger, which defended the urethra, and was fixed as well as I could against the obstructed part of the canal.

"The stilet was then carried up through the canula, and pushed through the obstruction in a direction rather backwards towards the os sacrum. On withdrawing the stilet it was followed by a discharge of faeces, through the canula, which continued for an hour so as to form rather a copious stool. Upon taking out the canula, a bougie was attempted to be introduced through the artificial opening, but without effect.

"The child was now left an hour, and on my return I found his belly more tense, and that his vomiting continued. I therefore directed several elysters of oil and water to be thrown up by means of a small pipe which was fortunately conveyed through the artificial opening into the gut. These elysters brought off a considerable quantity of faeces, but did not seem thoroughly to empty the intestinal canal; so that I deemed it expedient to attempt an enlargement of the opening, by means of the point of a blunt gorget carried up into the groove of a common director. A farther discharge of faeces ensued; and the child was then put into a warm bath, and castor oil was afterwards administered by the mouth. Notwithstanding these remedies, the vomiting continued, the child became convulsed and died in the course of the following night. Upon opening the body the next morning, I found marks of considerable inflammation in the intestines, principally in the large ones, which were inflamed to a great degree. There was no obstruction, however, to be found in any part of the intestinal canal, except that in the rectum.

"The drawing which accompanies this paper will show the manner in which the intestine terminated in a blind pouch, at the distance of an inch from the anus, in the hollow of the os sacrum. The space between the intestine and the anus was lined with an elastic ligamentous substance, which would probably have produced much inconvenience to the patient in retaining his stools, had the operation performed, protracted his existence." [Vide Plate VI, Figure 2.] (*Medical Facts and Observations. Vol. I. p. 102. London, 1791.*)

CASE LXXI.—William Adair, Esq., Surgeon General to

the garrison of Gibraltar, reported the following interesting case, on the 3rd of November, 1792.

"On the 7th of August, 1792, I was called to a child of an officer of this garrison, which had been born thirty hours without having had any evaevuation by the anus. Upon an examination, I found a passage of about two inches at the usual exit of the rectum, but which beyond this was impervious. There was an appearance as if nature had made an attempt at another passage; for at the end of the posterior perinaeum, near the os coecygis, was a small sinus of about half an inch in a direction towards the rectum. In both these blind passages the cuticle was equally strong as on any other part of the body. There could be no hesitation from which of the two we ought to attempt a communication with the intestinal canal, and, therefore, after examining with a pretty thick bougie, the former and most natural of these passages, I took a middling-sized trocar, and introduced it with the point within the canula, till it reacheed the end; then pushing it beyond the canula, and finding that not sufficient, I pushed the trocar forward, till it had completely overeome the resistance. I then left the canula in, and drawing out the trocar, observed the point of it tinged with meconium. This latter circumstance seemed to be a very favorable appearance: but after waiting some time nothing came away through the canula, nor when this was removed did anything follow but a few drops of blood. I now introduced a proper-sized bougie, which was suffered to remain for some hours; but when this was drawn out, nothing followed but a few drops of blood. A sponge tent of a proper size was also pushed up, and left in for several hours; but though it extended the passage more considerably than the bougie had done, no stools followed on its being taken ont. The parts after this were left at rest until next day, only a little warm milk was ordered to be thrown up the passage; and as the child (though its belly was preternaturally full, but not hard, and it had now been fifty-eight hours without any passage by stool, which in this climate, and in the month of Augnst, was very unfavorable,) still seemed strong and hearty, we introduced another pretty thick bougie up the passage, and left it there for twenty-four hours. This, when withdrawn was followed by a copious black stool, and that was succeeded by eight more in the course of twelve hours. Next day the evaenations were very frequent, to the amount of sixteen stools, after which they diminished in number, and became of the natural color. The child now appeared to be going on very well, but soon fell off; the stools became sometimes dark, and sometimes yellow; a

feverishness succeeded ; the belly continued distended till two days before it died, and then became smaller. The child lived only fifteen days.

I had no opportunity of examining the body, so that the cause of death cannot be ascertained ; but the history of the case leads me to consider it as not immediately connected with the consequences of the operation. The child might have been defective in other respects essentially connected with the vital organs. The operation succeeded perfectly in giving a passage for the contents of the bowels ; and so far this case is deserving of notice, as it may give some information to others who have this operation to perform under similar circumstances. It proves that although the contents do not immediately follow the instrument nor even the bougie, it is not to discourage the surgeon from future attempts, as persevering in the use of the bougie may be attended by the wished for success." (*Medical Facts and Observations, Vol. IV., p. 27. London : 1793.*)

CASE LXXII.—The following interesting case of imperforate rectum, above a well formed anus, was reported by Mr. William Chamberlaine, of London, on the 13th of March, 1797.

" I was called to attend the labor of Mrs. Ashmore, No. 15 King Street, Compton Street. She had a good natural labor, and was safely delivered of a male child. On my visiting the next day, the nurse informed me the child had had no evacuation either by stool or urine, and that it appeared very uneasy. I found the pulse feverish, and a great degree of tension and hardness of the abdomen.

" On examining the anus, I found it in a natural state ; however, supposing it possible there might be an obstruction higher up, I introduced a probe into the rectum and found a firm resistance at the distance of somewhat less than an inch and a half. Withdrawing the probe, I then introduced a very small glyster-pipe, well oiled, which stopped at the very same place ; then examining the obstruction by means of the probe, the glyster-pipe serving as a canula or director, I had not the satisfaction to find anything like reaction, or any sensation as if the faeces were forcing down some thin obstructing membrane. However, as the case was desperate, and a most miserable and perhaps lingering death was inevitable, unless something should be done, I determined at all hazards, to attempt a perforation. Having represented the case and its consequences to the parents, and obtained their permission, I determined to perform the operation with a small trocar ; and

introducing the canula first, well oiled as high as the obstruction, I pushed the perforator through the obstructing substance until I found no farther resistance; then withdrawing it and the canula together, I had the pleasure to see the instrument followed by a very copious discharge of the meconium slightly tinged with blood. I then thought it advisable to inject a common glyster; the pipe, in passing, stopped at the place where the obstruction had been, but the resistance was soon overcome, and a very moderate degree of force enabled me to get it all the way up. None of the glyster was returned, and the child seemed perfectly easy. On my return, however, in about two hours, I found we had still another difficulty to combat with. He had not made urine, and in consequence of this, convulsions, shrieking, fever, tension of the abdomen, and other alarming occurrences, had come on. I took a coach and went to Evans's, but could not get a catheter of a size small enough for a new born infant. I took with me, however, one of the smallest gum elastic catheters I could find; but even this on trial, was too large, and would not enter the urethra. No time was to be lost; but having no proper instrument, I bent my probe into the form of a catheter, and having, previously to my attempt to introduce the hollow bougie, divided with a lancet the small membrane that closed up the external orifice of the urethra, I passed the probe without difficulty, as far as the neck of the bladder; having got thus far, its passage seemed opposed by some obstructing substance; nevertheless, by a little perseverance, and gentle management of the probe, I was fortunate enough to find the probe at last move forwards, until I could perceive it to be fairly in the bladder, and the urine making its appearance at the external orifice of the urethra. I then withdrew the probe, which was followed by a plentiful discharge of urine, and the child became for a time easier.

"Next day, however, a message was sent to me early, that the child was worse; I found all the symptoms of the preceding day much aggravated, with inflammation (which the nurse mistook for mortification) of the abdomen; I ordered the warm bath, fomentations, and emollient glysters, to be prepared, and passed the probe as the day before, with the same success. By the help of these applications, and a few aperient and carminative medicines, the child recovered, and is now perfectly well." (*Memoirs of the Medical Society of London. Vol. V. Art. XXIII., p. 206. London: 1799.*)

CASE LXXIII.—Mr. Copeland, assistant surgeon to the Westminster General Dispensary, had the good fortune to

treat with success two cases of this species of malformation; one of which he reports as follows:

"I was desired by the late Dr. Thynne to see a male child, who was born with an imperforate anus, (*rectum.*) The form of the anus was perfect externally, but on introducing a bougie it was stopped in its progress about an inch from the external aperture. The abdomen was very tumid.

"After some consideration, I passed a flat trocar on my finger into the anus, with the point drawn into the canula; and when it would pass no further, I projected the point through the impediment; no fluid followed; but when the instrument was withdrawn, I thought I felt the tumid extremity of the gut; and by forcing it on I came in contact with the os sacrum. I had then no great hope of the recovery of my little patient, and still less on the following day; but desired, that if any faecal evacuation took place, I might be sent for. I was called on the fourth day, and found that a considerable alvine evacuation had passed, and the belly much gone down. When I examined with my little finger, I found the extremity of the gut with a small perforation so very high up in the pelvis, that I was fearful to introduce an instrument to enlarge the opening, if it could with safety be avoided.

"The next day, the fifth, the child had taken some castor oil; the surrounding parts were considerably swelled and inflamed, and the abdomen again tense, though some faecal evacuation had passed; he seemed easy, and had slept.

"The sixth day, but little of the contents of the abdomen had passed, and the child was still swelled and uneasy, until the bowels were evacuated by castor oil. There was a considerable purulent discharge from the anus. I had a great objection to the repeated introduction of instruments, or my finger, lest an interruption should be given to the adhesions which I hoped were forming between the gut and the surrounding parts; but so great was the difficulty of passing the faeces, that the following day I introduced a large elastic catheter, and the faeces flowed freely through it. The catheter was used as often as was necessary, for a considerable time, and to this I chiefly attribute the recovery of my patient, for, during its use, the purulent discharge ceased, and the gut descended nearer to the anus.

"When, after some time, I introduced my finger, the aperture at the extremity of the gut was felt, hard and contracted close to the anus, it was dilated by the use of bougies, which were continued for some time, and the child performs his functions with but little interruption, and is otherwise in per-

fect health."—(*Observations on the Principal Diseases of the Rectum and Anus.* p. 174. London : 1814.)

CASE LXXIV.—A case is recorded by Mr. Wayte, in which the membranous septum was felt by the finger above an inch from the verge of the anus. It was pierced with a pointed probe, which was followed by a hydrocele trocar, and afterwards by a bougie of large dimensions. On withdrawing the latter, much meconium mixed with faeces escaped, and continued to be frequently discharged. In a week, however, the opening closed, and a fresh puncture was made, which was maintained by the frequent introduction of bougies. The child proceeded tolerably well, until the end of another week, when the passage was again much contracted, and the abdomen proportionally distended. On the twentieth day from birth, a full-sized trocar was used for restoring the opening, which, however, again had a tendency to close, but was afterwards dilated by introducing twice a day bougies which were increased in size, until a rectum bougie of middle size could be passed. The boy now rapidly improved, and every hope of a perfect recovery was entertained, but disease of the os coccygis ensued, and at the end of six months the little patient died hectic. (*Edinburgh Medical and Surgical Journal,* Vol. XVII., p. 232. April : 1821.)

CASE LXXV.—A. Copeland Hutchison, Esq., relates the case of an infant which presented a normal anus, but some distance above, the rectum was found impervious. The operation in this instance failed, and it is especially on this account that the case is worthy of notice.

"I was called upon by Mr. Cullen, of Sherness, to operate on an infant son of Mr. H—, at Queensborough. The child was otherwise well formed, and the anus marked so distinctly that a small bougie was passed upwards in the apparently natural passage for nearly half an inch, when it met with a total obstruction ; even the smallest probe could not pass ; in fact, there was a total closure of the gut above the external well-marked anus.

"In the presence of my friend, Mr. Cullen, I made an incision of proper length and depth, with the scalpel, and then introduced a small sized trocar with great caution for fully three inches ; but no meconium, only a very little blood escaped on withdrawing the stilette.

"The patient died in a few hours afterwards ; and on examination after death we found, by the introduction of a bougie, that the gut was grazed by the cutting instrument, which

had it penetrated, there was every chance that the child would have survived." (*Op. cit. p. 274.*)

CASE LXXVI.—D. O. Edwards, Esq., of Westminster, England, reported, on the 28th of January, 1830, the following case of an infant having a normal anus with an imperforation of the rectum some distance above.

"Ann Aldridge, residing in Castle Lane, Westminster, a delicate woman, about thirty-seven years of age, was at the full period of gestation delivered by natural efforts, on the 17th instant, of a male, her sixth child. The two preceding children were still-born, and the mother had suffered much from grief and anxiety, having been deserted by her husband, and obliged to maintain the surviving children by her exertions as a laundress. The infant was full grown, having nothing peculiar in its external form, except the continuance of the sagittal suture downwards to the nose. The integuments were rugose and sodden, plainly indicating a decrease of substance since the consummation of its growth. Its cries, respiration, and other muscular efforts, were unusually feeble.

"On inquiry, twenty-four hours after birth, it appeared that no discharge whatever had taken place per anum; the infant seemed to have no power of suckling, and rejected every kind of aliment. The abdomen was distended and painful on pressure, the lower limbs rigidly contracted on the pelvis, respiration difficult, and a constant moaning existed. The form of the bladder also, notwithstanding a discharge of urine had taken place, was distinctly manifest in the hypogastrium. The anus was apparently well formed, in its proper site, and of the usual size, and during the strenuous attempts at defecation, which the little sufferer was constantly making, the retractive efforts of the levator ani were particularly evident.

"The introduction of a bougie detected an obstruction about an inch above the external orifice, and which the finger ascertained to be impenetrably strong and fibrous. At each endeavor to expel the excrement, an impression was communicated to the finger similar to the pressure of a quantity of impending fluid.

"Having consulted my friends, Messrs. Chapman, Weight, and Blakeney, the penetration of this adventitious membrane was considered to be the most rational and indeed only probable means of saving the child from imminent death. An incision was therefore made, forty-eight hours after birth, from the anus to the coccyx, and as far up as the cul-de-sac, which formed the obstruction. A sharp-pointed bistoury was then introduced, shielded by the index finger, and three

incisions, commencing at one point, and directed towards the sacrum, made completely through the membrane; no fluid escaped; the knife was withdrawn, and the finger again passed up, but no indication of the situation of the rectum could be found, and the near neighborhood of the peritoneum, bladder, vessels, etc., was tangibly evident. It was thought prudent, for these reasons, to desist from the further use of the knife, and the usual palliatives were resorted to during the remainder of the child's existence, which terminated on the following day, with all the symptoms of strangulation.

"Autopsy six hours after death—Conducted in the presence of Messrs. Weight, Chapman, Blakeney, and Jenkins. Abdomen much swollen, and slightly discolored. On making the first incision, a small quantity of dark-colored blood escaped, and the alimentary canal was found distended to the utmost. The liver was of ordinary size, color, and consistence; the gall-bladder elongated, deeply imbedded in the parenchyma of the liver, peculiarly curved near the fundus, and filled with dark-colored bile. The stomach and small intestines were filled with flatns, and contained mucus mixed with bile. Into the cœcal portion of the ileum, a quantity of meconium had escaped through the ileo-cœcal valve, but which was of perfectly natural formation. Nearly the entire peritoneum was inflamed, and particularly that which envelops the large intestines. The cœcum, colon, and rectum, were completely filled with thick and viscid meconium. The muscular and mucous tunics were pretty healthy in the stomach, duodenum, and jejunum, but a large portion of ileum was in a gangrenous state, and all the large entrails indicated a state of intense inflammation. Sigmoid flexure remarkably large, with a long mesenteric attachment. The rectum terminated in a cul-de-sac at the middle of the sacrum, having a meso-rectum in its whole length, and a complete peritoneal covering; the mucous lining and muscular tissue equally contributed to form the sac. The peritoneum was reflected laterally and downward, from the meso-rectum to the sacrum and sides of the pelvis, and was, as usual, continued forwards over the bladder, giving a covering in its passage to the third portion of the rectum, which was thus completely detached from the main gut. This membrane being raised, the recto-vesical fascia was seen passing backwards from the neck of the bladder, and completely closing up the inferior opening of the pelvis. Under this, the levatores ani lay, stretching from the sides of the bladder directly backwards to the sacrum, and becoming blended with the muscular fibres of the sphincter

and the longitudinal fibres, which constituted the insulated anus. The sphincter was perfectly well formed, and attached, as usual, to the coccyx and centrum tendinosum perinei; its fibres were intimately connected with those of the levator ani, and contributed to form the adventitious barrier.

"It is evident from the dissection, that the cavity of the peritoneum intervened between the blind pouch of the rectum and that of the anus, and consequently no operation could have availed; a distance, too, of half an inch existed between the termination of the rectum and that of the anus. The bladder, urethra, and their appendages, were perfectly well formed, and in their proper position; the pelvic arteries obeyed the ordinary laws of their distribution, regardless of the disorder extant around them. In the thorax, the viscera and their coverings were perfectly natural, and, indeed, the whole economy seemed perfectly well adapted to sustain the development of life, but for the fatal lusus just described.

"One of the three incisions had penetrated the cavity of the peritoneum, but no intestine had been wounded." (*London Lancet. Vol. I. Feb. 6, 1830. p. 637.*)

CASE LXXVII.—M. de Lens related the following case to the "*Medical Society of Paris*" in February, 1835.

"In a young child which M. de Lens saw in company with M. Moreau, and which had not passed meconium for twenty-four hours after birth; the examination of the anus, showed an imperforation of the rectum several lines above the anal orifice. The cul-de-sac could be very clearly perceived with the finger. When the finger was introduced to the bottom of this external cul-de-sac no impulsion was perceived.

"The operation was performed with the trocar, and a considerable quantity of faecal matter followed by the canula. A tent of charpie was introduced into the opening, but grave symptoms presently manifested themselves, and the child died next day.

"No autopsy was had." (*Revue Médicale de Paris. Mai, 1835. p. 285.*)

CASE LXXVIII.—M. Saudras also related to the "*Medical Society of Paris*," at the same time, a somewhat similar case to that of M. de Lens. In this case the following peculiarity presented itself: Whenever the child cried, the anus formed a clearly marked protuberance. M. Sandras performed the operation with a bistoury, which he conducted upon a director to the extent of about three lines. After the passage of the meconium, he made the usual dressings adopted in the opera-

tion for fissure of the anus, and the little patient was cured. (*Loc. cit.*)

CASE LXXIX.—M. Forget reports the following case :

Being called to an infant affected with an imperforation of the anus, he found the rectum obliterated about ten lines from the anal orifice. The obstacle presented to the finger the form of a cul-de-sac, resisting and corrugated as if produced by a ligature, or an interruption of the intestine. The cries of the child and the pressure upon the abdomen gave no sign of fluctuation to the finger. M. Forget considered the case a grave one : as the condition of the child was not immediately dangerous, notwithstanding the tension of the abdomen, vomiting, &c., he advised the friends to take the child to M. Roux, who would decide the kind of operation to be performed, not daring himself to make a puncture through an obstacle whose limits were not at all indicated. The parents, frightened at the idea of an operation, removed their child, without being willing to show it to any one, not even to the usual attending physician, who wished to watch the state of the obstacle. It was not till ten days after, that another physician, having asked to see the child, recognized a fluctuating tumor in the anus, which he immediately incised with a lancet, and the child was saved. (*Revue Médicale de Paris. Mai. 1835. p. 283.*)

CASE LXXX.—M. Billard reports the following case of imperforation of the rectum, in which the anal orifice existed.

“ Leblond, aged one day, of a robust constitution, entered the infirmary of the *Hospice des Enfants Trouvés* on the 10th of July. To the night of the eleventh, he had passed no meconium ; yet the orifice of the anus appeared free ; the abdomen had become swollen and very painful ; the respiration was difficult ; the extremities cold ; the pulse small ; the cries were without intermission. Towards evening, the child after having thrown up a quantity of yellow mucus, vomited the meconium.

“ It was placed in a bath for half an hour without having any evaenation. The anal opening appeared to exist externally, and a catheter could be introduced to the depth of one inch, but then met with an insurmountable resistance. I caused a suppository of soap to be passed in the rectum, and let it remain half an hour without any evacuation. I then passed a bistoury, the point of which was directed by means of a grooved probe in the direction of the sacrum ; the edge

of the instrument turned backward, and the back of it forward. The feeling that the resistance was overcome, indicated that the perforation had been made. I withdrew the instrument, the point of which was covered with meconium; a small quantity of blood flowed. An injection was then given which was soon returned, bringing with it some grumous blood. The child was again placed in the bath, without experiencing any relief. The cry became more feeble; the abdomen swelled more and more; the respiration was quick and suffocating. Death took place about the middle of the night.

"Post mortem Examination.—Mouth and œsophagus healthy; the stomach contained some meconium; it was also found in the small intestines, which were distended with gas. The large intestines were considerably dilated by thick meconium; the dilatation commenced at the cæcum. The rectum terminated by a cul-de-sac the extremity of which was corrugated; it adhered to the neck of the bladder, and did not descend to the anal orifice in the skin. The incision made in the cul-de-sac by the bistoury was found filled with a recently formed clot of blood, which seemed to have resulted from a hæmorrhage from the hæmorrhoidal arteries. All the organs of the abdomen were perfectly healthy."

The lungs were gorged with blood at their posterior border; the foetal openings were free; the sinuses of the cranium were filled with blood." (*A Treatise on the Diseases of Infants. English Translation, by James Stewart, M. D. p. 280. New York: 1839.*)

CASE LXXXI.—The following case of imperforate rectum accompanied with a normal anus, occurred in the practice of Dr. James Stewart of the city of New York, who reports it in the Appendix of his English version of Billard on the Diseases of Infants. A narrative of the same case was read to the "*Kappa Lambda Society of New York*" by the operator, Richard K. Hoffman, M. D. In this instance Dr. Hoffman operated with a trocar used for paracentesis, with complete success.

"The lady of Mr. J. P—, of this city, (New York,) was delivered, on the 12th of June, 1839, of a male child. He was to all appearance in perfect health, and it was not until the next day that any disordered state of his system was manifested. The nurse then stated that he had passed no meconium and appeared to be much distressed with nausea. Laxative enemata were directed to be used; a teaspoonful of castor oil had previously been given by the nurse and

rejected ; on making a visit in the evening of the same day, it was ascertained that great difficulty had been experienced in giving the injection. The nausea and vomiting had increased, no meconium had been voided ; and on examining the abdomen it was found swelled and tense. Suspecting that there existed some obstruction in the intestinal canal, an examination was made of the condition of the rectum ; the anus was found perfect, but an obliteration was discovered about three quarters of an inch from the sphincter ; various-sized elastic bougies were introduced to ascertain the existence of a passage and to dilate it if one could be found, but not the slightest opening could be detected, even with a small probe.

On ascertaining this condition of the part, the nature of the malformation was explained to the parents and its inevitable consequence, the death of the child, announced, unless relieved by an artificial opening, which at the same time it was told them was uncertain, from the impossibility of ascertaining the extent of the obliteration. Dr. Richard K. Hoffman was requested to visit the patient ; who upon a careful examination, coincided in the opinion previously expressed, and recommended an operation, as affording the only chance of saving the child's life. Having obtained the consent of the parents, he immediately introduced a common trocar into the rectum, and passed up to the obliterated portion ; this was found to be tough membrane, and some force was required to pass the instrument through. The meconium immediately flowed out on withdrawing the instrument, accompanied with a quantity of thick purulent fluid. Injections were given, and the bowels kept open by their use. He continued to have offensive discharges for a week afterwards. At the time of writing this (July 26th,) he is perfectly well and in a thriving condition." (*A Treatise on the Diseases of Infants, by C. M. Billard. English Version, by James Stewart, M. D. p. 577. New York : 1839. Also—New York Journal of Medicine and Surgery. No. III. January, 1840. p. 212.*)

CASE LXXXII.—Dr. George Bushe, of New York, witnessed in a new-born infant brought into the dissecting room, that the rectum above a well formed anus, was intercepted by two membranous partitions. They were both quite thin and friable and about three quarters of an inch apart, the lower one being about half an inch above the anus. The rectum above these membranous septa, was loaded with gas and meconium. (*A Treatise on the Malformations, Injuries*

*and Diseases of the Rectum and Anus. Chapt. III. p. 40.
New York: 1837.)*

CASE LXXXIII.—M. Voillemier, reports the case of an infant presenting a normal anus, but the rectum was divided by membranous partitions, into four distinct compartments, of which the superior one only contained meconium and gas, the others enclosing a thick mucus. (*Gazette des Hopitaux de Paris. Année 1846.*)

CASE LXXXIV.—Dr. Herman Friedberg mentions a case of this species of malformation, in the pathological portion of his able essay on *Artificial Anus*.

The case was that of a new-born female child, whose anus was well-formed, but the anal canal was closed a little above the sphincter. The attempt made to open it by puncture produced no evacuation of meconium, and the child died six days after birth.

At the autopsy, the walls of the intestine were found adhering to each other and closely united in two different places. Dr. Friedberg was of opinion that this cohesion was caused by inflammation of the rectum during foetal existence.

CASE LXXXV.—The following interesting case of imperforation of the rectum above a well-formed anus, is reported by M. Amussat.

"On the 22d of December, 1842, M. le docteur Schnurer sent me a new-born male infant who had passed no meconium since his birth. The child well-formed and developed in all other respects, was born on the 20th at seven o'clock, P. M., and as the anus perfectly well-formed presented an opening of the usual size, there was no immediate suspicion of an imperforate rectum. But after administering purgatives for two days they sought to account for the condition of the child, who vomited all that he received upon his stomach, and whose abdomen was becoming sensibly larger. Upon introducing the finger and a sound, imperforation was discovered.

"When we saw the child, his abdomen was swollen, his skin presented the violet hue common in cases of obstruction of the venous circulation, and he cried incessantly.

"A sound introduced by the anal opening penetrated without difficulty a distance of about seven eighths of an inch. At this height it encountered an obstruction which it could not overcome. The little finger was likewise arrested at the same height, and there was no perceptible fluctuation indicat-

ing that the upper part of the rectum, distended by meconium, terminated immediately above the closure.

"By percussion of the regions of the perinaem and coccyx, very considerable fluctuation was perceived just behind the anus. This fluctuation, particularly evident when the child cried and made any straining effort, or when pressure was made upon the abdomen, was clearly recognized by all the assistants. Was it an indication that the upper part of the rectum, deviating from its normal course, terminated near the skin of that region? It was quite probable, but by no means certain. Besides, on examination, the coccyx was found not to be as much curved as is customary with well-formed children, indicating that the intestine developing itself in its inferior portion, had pushed back the coccyx in order to make room for itself. At all events, so unusual a circumstance as a fluctuation extremely perceptible behind the anus, and altogether unperceived by examining the anal aperture with the finger, was sufficient to embarrass the operator, and render him undecided about the proper course to take. Should he incise the closure, making use of the anal opening, or would it be better to form an artificial anus between the normal opening and the coccyx, at the precise point where the evident fluctuation indicated almost surely that the upper end of the rectum, imperforate, had reached by its distension within a very small distance of the skin?

"After reflection, I decided on the latter operation. The fluctuating tumor was incised with a bistoury, plunged deeply, upon the withdrawal of which gas and meconium were voided. The opening having been enlarged, a sound and the finger were introduced into the artificial anus. A great quantity of meconium flowed. Satisfied with the happy result of the operation thus far, I reflected on the means necessary to restore a part, if not all its functions to the natural anus. M. Vidal, of Poitiers, one of the assistants, proposed enlarging the opening on the side of the anus, in order to make one cavity of the two which existed. A grooved sound soon perforated the thin membranous obstruction which separated the two ends of the rectum. It was incised with the scissors after catching it with the finger and bringing it down. The intestinal mucous membrane was smooth and soft, and the finger was covered as by a hood with the anterior portion of the partition. The child was bathed and cleaned. Emollient injections were recommended for the wound, and sitz baths were advised. The child was brought to us daily, and his condition gradually improved.

"An elastic canula was introduced from time to time dur-

ing the day, into the anal opening, to dilate it and prevent contraction.

"At this date, February 18th, 1843, the child seems as well as though it had never endured so grave an operation.

"Reflections."—The diagnosis has been perfectly justified by the operation. My ideas formed at the time of the operation and leading me to this diagnosis were as follows: When fluctuation was not perceptible to the little finger introduced into the cul-de-sac of the rectum, one would hardly have imagined that it would be discovered behind and lower down: it would naturally be supposed that the other end of the intestine was higher up; but on reflection we see the thing is possible, and the fact proves it. It is very probable that in all analogous cases it must be so, but in a variable degree, according to the distention of the upper end.

"The operation in the rear of the cul-de-sac of the rectum, was perfectly successful. After incision into the meconial pouch the gas and meconium were immediately evacuated. I enlarged the opening, and introduced a sound and the little finger without any difficulty. I subsequently enlarged the opening yet more at its lower part, in order to make the anus serviceable, and finally with a grooved director, I penetrated the thin mucous membrane which formed the obstruction. I cut it entirely through, and the normal anus consequently now communicated with the artificial opening made behind it. With the little finger I recognized the mucous membrane, as well as a part of the separating membrane covering the finger like a hood; finally, I removed this portion of the obstruction with the scissors, and then the finger could be easily introduced into the rectum without encountering any other obstacle.

"From the description of the operation it is easy to infer the pathological condition of the intestine. It is evident that the rectum was closed, or strangulated about one inch and a quarter from the anus; in this state the other end of the intestine was distended and extended back, having displaced the coccyx, taking its position between the inferior extremity of the coccyx.

"We must perceive that the same disposition of parts exist when the pathological condition is the same.

"It would be highly interesting to examine an anatomical specimen of this kind, in order to see the cause of imperforation, and the adhesion of the cul-de-sac in front.

"Although it was impossible to recognize the fluctuation at the bottom of the cul-de-sac, if we had operated there with the trocar or the bistoury in the ordinary manner, we should

undoubtedly have completely evacuated the meconium; but we know the difficulty of keeping the opening sufficiently dilated. The cul-de-sac of the upper end would have interposed a serious obstacle to the flow of the fecal matter.

"Previous to this case I have always endeavored to bring down the upper extremity to the anus, after having cut off the inferior end in the rear.

"It is evident that the operation on this last child is far preferable and more simple in execution. It is like a grand operation for fistula in ano.

"The diagnosis being the same, would it not be preferable to cut the anus behind, in order not to ascend too high by the side of the coccyx. With a small straight-bladed bistoury, the point covered with a small wax ball, we might at first enlarge the anus towards the rear, in order to explore and direct for the rest of the operation."—(*L'Examinateur Médical de Paris. Année 1843. tome III. No. 17. p. 216.*)

CASE LXXXVI.—Dr. Condie reports a case as follows—"We have lately seen a case of this species of malformation, in which the obstruction, consisting of a transverse membrane, existed about an inch and a half within the anus, the lower portion of the rectum being in all respects perfectly formed. The child lived four days, and until within a few hours previous to death, presented no indication of the existence of the obstruction, excepting the absence of all discharges from the bowels. Shortly before death, great tunefaction of the abdomen from the development of gas took place, with evident pain upon pressure of any portion of the abdomen. No operation was permitted by the parents.

"An examination of the body revealed the nature of the obstruction—a firm membranous partition existing about one and a half inches above the termination of the gut, and forming a complete obstacle to the further passage of the contents of the bowels. The small intestines were perfectly empty, greatly contracted, and free from the least trace of disease; the colon was enormously distended with gas, and through its whole extent, injected with blood. The upper portion of the rectum was likewise greatly distended, and contained nearly eight fluid ounces of meconium, and thick ropy muens; its mucous coat presented very decided marks of inflammation." (*A Practical Treatise on the Diseases of Children, p. 191. Philadelphia: 1844.*)

CASE LXXXVII.—The following case of imperforation, or

rather absence of the rectum, above a normal anus, is reported by Professor James Jones of New Orleans.

"The first case in my practice," says Dr. Jones, "occurred in February, 1846. I delivered a lady of a fine boy on the morning of the 13th, and as she lived two and a half miles from my residence, left her in charge of a very experienced nurse, who now practises with some reputation as a midwife. Next day she informed me that the child had as yet no passage from the bowels, notwithstanding the exhibition of olive and of castor oil, and also of two enemata. The child was very restless and fretful, vomited and had a very tense belly. I took the syringe which had a long ivory nozzle, and using it as a sound for the examination of the anus and rectum, found to my regret that it would only penetrate about half an inch, and that the anus (*rectum*) was imperforate. I immediately made an incision with my lancet to the depth of half an inch more, and finding by the introduction of a cataract needle an inch and a half, that neither air nor liquid of any kind made its appearance, I called Dr. Stone into consultation, who disapproved of further incisions, and dilated that already made to the depth of an inch and a half unsuccessfully. The abdomen became more tense, the child gave evidences of great suffering and died on the next day."

"The post-mortem was made on the 17th, by my friend Dr. Lemonnier. The intestines were all greatly distended, and the surface of the peritoneum covered with coagulable lymph. The lower portion of the colon, which was the part most enlarged, terminated at the promontory of the sacrum, in a cul-de-sac, filled with meconium. There was a complete absence of the rectum, and the end of the colon had two little punctures made by the needle, from which, apparently, nothing had escaped. If they had been larger, the contents would have been emptied into the cavity of the pelvis." (*New Orleans Medical and Surgical Journal. Vol. XV. p. 98. 1858.*)

CASE LXXXVIII.—M. Baudelocque mentions the case of a child two days old, presenting a natural anus, but having voided no meconium. On passing the little finger of his left hand into the rectum, he found that organ terminated in a cul-de-sac, about one inch above the anus. He made an incision through the occluding membrane with a sharp-pointed probe through a cauila, and the meconium immediately found a passage, and the child was relieved.

Baudelocque subsequently performed the same operation in apparently a similar case, but it completely failed. He then

sueeessfully performed eolotomy after the method of Callisen, modified by Amussat. (*Mémoire de l'Académie Royale des Sciences. Paris : Août et Octobre. 1844. Also, London Lancet. Vol. I. February, 1845.*)

CASE LXXXIX.—John Pikeop, Esq., a London surgeon, reports the following case of imperforate reetum above a natural formed anus.

"On the 13th of July, 1849, I attended Mrs. M—, in labor of her first child, a female. During my visit, the following day, I was informed that the child's bowels had not been moved; but, hoping they might be during the day, I took little notice of the remark.

"Jnly 15th.—The bowels still unmoved, though easor oil had been given. The child would not take the breast, and vomited any fluid almost as soon as taken. Bowels much distended. Retching, hiccough, and other symptoms of severe enteritis. Ordered a calomel powder immediately, and a tea-spoonful, every three hours, of a mixture, containing a saline laxative, with tinctures of eardamoms and henbane.

"16th.—Vomiting abated. Belly still as usual, without any evacuation. I proceeded to inject a little warm water per anum, but was surprised to find it instantly returned, unaltered. This induced me to introduce my finger, as I imagined there might exist some imperfection in the passage. On doing so, I found, that when my finger had passed about an inch and a half, the bowel was closed, precisely like the end of the finger of a glove. I could not detect any distended portion of bowel to correspond. This condition of parts fully disclosed the nature of the ease. I explained to the mother the immediate necessity of an operation, to afford the child any chance of life, to which she consented.

"17th.—In the presence, and with the advice, of Mr. Grime, surgeon, and Dr. Irvine, I introduced a sharp-pointed bistoury, against my finger, to the seat of obstruction, and pushed it on about an inch. On withdrawing, nothing escaped but a little venons blood. I then passed through the opening a small bougie, on which being removed, there followed a copious discharge of meconium and other matter. From this time the child became easier, and on the following day began to take the breast. The mixture was continued for a few days, and also the introduction of the bougie. The bowels are regularly moved, and the child is in perfect health.

"The removed extremities of the reetum appeared to be connected by a short band of fibrous membrane. I have be-

fore seen cases of imperforate anus, but not of impervious rectum." (*London Lancet, Vol. I., May: 1850.* p. 510.)

CASE XC.—Von Schleiss, of Munich, reports the case of a male infant in whom the rectum was imperforate about one inch above a well-formed anus. Beyond the point of imperforation, the rectum was absent, and the colon terminated in a cul-de-sac. Schleiss, by a very lucky plunge with a trocar, reached and penetrated the blind end of the inferior extremity of the colon, without wounding the bladder or any of the pelvic viscera. Success, under numerous difficulties, finally attended the operation.

On the 11th of October, 1850, Mrs. J. St—, a healthy woman of Munich, aged twenty-two years, was delivered of her second child, a boy, like her first still living, healthy and well-formed; no appearance externally whatever of any deformity. The child seemed quiet, had passed urine, but had taken no nourishment, neither had it evacuated any meconium for twenty-four hours. The midwife in charge of the case administered an enema, but it immediately returned without producing any effect. Late in the evening of the 12th of October, Von Schleiss was called, and the midwife made him acquainted with all the circumstances of the case, so far as she knew. He observed that the child made strange movements with its mouth and tongue, being between those of licking and those which precede vomiting. Upon examination of the perinaeal region, he found the anus normal, but on introducing his little finger he found the canal completely obstructed about an inch above the anal orifice. The cavity of this portion of the rectum was empty, and no trace of meconium could be perceived, he therefore became assured that its continuity was interrupted, and that it ended in a blind sac; and that there was actually before him a case of *atresia recti*. In consequence of the lateness of the hour in which he made this discovery, he postponed further proceedings till next morning, mindful of the advice of Dieffenbach, to defer operating in such cases till the second day. The child remained quiet during the night, except the movements of its mouth and tongue, which were increased in violence, without, however, resulting in real vomiting; but then it had taken no water nor any nourishment, and had passed no meconium. On the morning of the 13th of October, he made a more thorough exploration of the parts, by introducing a small silver catheter into the bladder, and his little finger as well as a small probe into the rectum. This examination resulted in the conviction, that between the point of obstruction in the rectum,

and the inferior extremity of the colon, the former was deficient, and that no communication whatever existed between the two; that the bladder which, in this case, was wide and deep, had advanced as far as to the sacrum, to the anterior surface of which it was adherent, was lying between these two points—that is, between the blind end of the rectum, and the blind end of the inferior extremity of the colon.

Von Schleiss was of opinion that this was a case *sui generis*, and that no method of operating heretofore recommended was at all applicable to it. He however determined on this occasion to use the trocar usually employed for paracentesis abdominis, the child being placed on its right side with its thighs drawn up and nates separated. Presuming that the blind sac of the inferior extremity of the colon would be situated more to the left, as in its normal place, Schleiss introduced the trocar through the anal orifice into the rectum, and pressed it to the left of the rectum by the side of the false vertebra of the sacrum, and between the latter and the posterior wall of the bladder into the cellular tissue which united them; and then pushing the stilette strongly in the direction indicated, he experienced the sensation of having traversed five or six lines of cellular tissue, and then having penetrated a cavity. On withdrawing the stilette he found the point soiled with meconium; and upon pushing the canula still further upwards through the wound which had been made, into the cavity, meconium immediately flowed through it. The child at once improved in every respect, and for the first time took the breast. The silver cannula of the trocar was allowed to remain in place for nine days, when it was replaced by elastic tubes of gradually increased sizes; and at last after four weeks these were laid aside altogether. The faecal matter now passed easily through the newly made canal.

When the child began to pass more solid faecal matter, occasional difficulties occurred, which increased until it was a year old. It seemed compelled to make, at different times, two distinct efforts to accomplish the evacuation of its bowels. At the first effort its uneasiness and cries only ceased after the faecal matter had passed the newly formed passage from the colon, and had become lodged in the cavity of the rectum. At this effort no faecal matter whatever would pass by the anus. At a subsequent period, however, when to all appearance no marked efforts were being made to defecate, manifestly limited to the rectal region, they were nevertheless followed by evacuation. The child often remained several days without stooling, and made useless and painful efforts.

On examining the rectum with the finger, the rectal cavity was found to be filled with scybala; it was sometimes necessary to extract them with the finger. After regular injections of cold water had been used for some time, evacuation became easier; however, difficulty of evacuation occurred from time to time. Twenty-five months after the operation, the child was healthy; the artificial canal between the colon and the rectum, passing behind the bladder, was three or three and a half lines in diameter. Von Schleiss hoped that it would become yet larger as the child grew older. He encountered much trouble and difficulty in the treatment of this case, in consequence of the occurrence, first of umbilical, then of inguinal hernia on each side, doubtless the result of the straining efforts of the child to evacuate its bowels, together with its constant cries. (*Zeitschrift für Rationelle Medicin. Neue Folge. Band. III. S. 366. Heidelberg: 1853.*)

CASE XCI.—The following case was communicated to the editor of the "*Boston Medical and Surgical Journal*," by Dr. A. Bryant Clarke, in a letter dated Holyoke, Mass., February 10th, 1852.

"I attended a lady, the mother of several healthy children, in her confinement on the 5th of April last, who was delivered of a fine, plump-looking boy, and to all appearance perfectly developed. On calling the next day, the mother and child appeared to be doing well. To my inquiries, however, the nurse stated that nothing had passed its bowels. A slight laxative was ordered, with directions to use injections by evening if nothing passed. The second day, nothing having passed, and the nurse not being able to inject anything, I was led to examine the rectum. I could pass my little finger into the anus without difficulty, but after passing about three-fourths of an inch it met with firm resistance, appearing to terminate in a cul-de-sac. The nature of the case was now made known to the mother, and the only means of relief, an operation, was proposed; but as her husband was absent, she declined having it done until his return. Circumstances prevented this until the evening of the seventh day. He at first declined an operation, but seeing how well the child continued to be, and after consulting a neighboring surgeon, he consented to have an operation performed on the morning of the ninth day. I made use of a *trocar and canula*. After passing the trocar through the canula, I withdrew it, but no meconium followed. Having pushed up the canula into the opening made by the trocar, I again inserted the latter and withdrew it, when the meconium followed in abundance. The child

made no cries, and seemed to be relieved by the operation. But very little blood was lost. Yet the child died in about twenty-four hours.

"The parents being very intelligent and well-informed, kindly consented to an examination, which was had the next day. On laying open the cavity of the abdomen, the colon was found adherent throughout its course upon the left side to the internal walls of the cavity of the abdomen. The abnormal state of the rectum was now seen to consist of a fleshy-looking mass, interspersed with fat and cellular substance, which made it resemble the muscular tissue of other parts, and to close up the rectum for the space of about an inch and a half. Upon examination it was found the trocar had gone directly through the centre of the mass, and was perfectly successful, so far as the operation was concerned. It was observed that there was a fetid smell to the urine the day before, and there is no doubt that the means of relief were too late." (*Boston Medical and Surgical Journal. Vol. XLVI. p. 100. Boston : 1852.*)

CASE XCII.—Goeschler, of Prague, reports the following interesting case of imperforation of the rectum, the anus, in the meantime being normal. In this instance the rectum was obstructed at two points, first, by a membranous septum, at half an inch above the verge of the anus; then again at two inches. Beyond this second obstruction the rectum was entirely wanting, the colon terminating in a cul-de-sac.

Mrs. A. S—, aged thirty-nine years, the wife of a shoemaker, was delivered on the 19th of July, 1854, of a vigorous and to all appearance a healthy and fine conditioned boy. The child urinated regularly, but could not evacuate its bowels. On the next day, after giving it some marsh-mallow tea, vomiting ensued, and the midwife in attempting to administer an enema, met an obstruction within the anus, which induced her to call in the aid of Goeschler.

On the 20th of July, at eleven o'clock, A. M., Goeschler arrived, and upon percussing the child's abdomen, he discovered a clear full tympanitic sound; its respiration was hurried; and its hands and feet were of a violet hue. The local examination of the perineum, which he made, resulted in finding a well formed anus, surrounded by a sphincter capable of contraction; but an ivory sound which he attempted to introduce, entered only about half an inch, being obstructed by the closure of the intestine at that point. This obstacle having been incised by means of a pointed bistoury, he succeeded in introducing the sound about two inches; but at

this point there was found a second occlusion as complete as the first, and allowing neither evacuation of the meconium, nor liquid injection. Goeschler perforated this second obstacle by means of a trocar, and immediately two large spoonfuls of meconium passed out. The swelling of the abdomen at once diminished ; the sound and the pipe of the syringe were easily introduced, and an enema of cold water was administered. A large elastic catheter was now placed in the newly made canal. At the end of two hours the infant grew pale, the tension of the abdomen returned, the extremities became blue, and respiration was hurried ; the evacuation of meconium ceased by degrees, and death occurred about six o'clock P. M.

The autopsy was made by Professor Engel, and gave the following results—The anus was well formed, but from a short distance above it to the promontory of the sacrum, the rectum was completely wanting : the bladder was normal. The blind end of the colon was about the height of the promontory and attached to the anterior surface of the sacrum by a continuation of the peritonæum. The sound introduced into the anus, passed into the artificial canal, and thence into the opening made with the trocar in the closed extremity of the colon. The canal thus formed passed along the line usually occupied by the rectum, in this instance filled up with a firm cellular tissue. The abdominal cavity was filled with liquid meconium ; but there was no appearance of peritonitis, nor was there any trace of internal haemorrhage." (*Viertel-jahrschrift für die praktische Hellkunde, XII. Jahrgang, 1855. III. Band. S. 134. Prag.*)

CASE XCIII.—Mr. Bird, translator of M. Bouchut's treatise on the diseases of children, reports a case as follows :—

"Through the kindness of my friend Mr. Tapson, I have had the opportunity of witnessing the following case ; a female child was born nearly dead, with feeble respiration, blue surface, and deformity of the left hand. On the second day, no meconium having passed, an examination was made ; the anus was well formed, but on introducing the finger an obstruction was discovered about half an inch from the anus ; it gave the sensation of a membrane, which, on the feeble effort of the child became more tense ; the child continuing in a state of cyanosis, with feeble respiration, any operative proceeding was deemed useless and cruel ; it died on the fifth day, having taken only a few teaspoonfuls of nourishment ; there was no vomiting with the exception of a single effort,

on the second day, when a little fluid tinged with bile escaped ; the abdomen became much distended before death.

“*Autopsy*.—Lungs free from congestion, collapsed, but restored by insufflation ; it was evident, however, that air had never entered some portions, which required strong efforts of insufflation to distend them. Both auricles, especially the right, were distended with clots ; the foramen ovale was only two-thirds closed by a thin membrane, the free edge being directed anteriorly ; the ductus arteriosus was widely open. The peritoneal cavity contained much gas and faecal matters, but there was no trace of any inflammatory products. About three inches from the appendix vermiformis, a long rent in the peritoneal covering of the colon was observed, showing the mucous membrane beneath ; this was softened and thinned and presented a circular opening less than half an inch in diameter, the edges of which were irregular from small shreds of mucous membrane ; the vessels were much congested in the neighborhood of the rent, but no signs of inflammation were observed, the rent being apparently the result of mechanical distention. The rectum terminated in a perfect *cul-de-sac*, the distended haemorrhoidal vessels ramifying over the extremity, all the coats of which were perfect, and not the slightest trace of any opening was observed ; the vessels of the mucous membrane were considerably injected ; the large intestines contained no meconium but a large quantity of firm bright colored faeces.” (*Practical Treatise on the Diseases of Children. By M. Bouchut. Bird's English version. Book X. Chap. I. p. 515. London, 1855.*)

CASE XCIV.—Mr. Ashton reports a case of this species of malformation.

“I have,” says he, “in my possession a preparation given me by my friend Dr. Quain, namely, a case of malformation of the rectum, in which the intestine terminated in a closed sac. The preparation was presented to the Pathological Society, and the particulars of the case are published in the Society’s Transactions. (Vol. 1. p. 280.) The anus was perfect, through which an incision was made by the surgeon in attendance ; but he was unsuccessful in opening the bowel, and the child died on the ninth day.” (*A Treatise on the Diseases, Injuries and Malformations of the Rectum and Anus. By T. J. Ashton, M. D. Chap. XIX. p. 333. London : 1854.*)

CASE XCV.—S. Parkman, M. D., reported the following case to the *Boston Society for Medical Improvement*, on the 13th of February, 1854.

"The patient was fifty-two hours old; anus perfectly formed; obstruction of rectum nearly two inches within the anus. Dr. Parkman waited eighteen hours, until the septum became distended by collected meconium, and then punctured the pouch with a trocar; injecting afterwards, and washing out the bowel. This process was repeated, the opening not remaining free, a director was passed into the anus and through the opening made by the trocar, and the sphincter ani and the septum were divided, from before backwards, by a free incision; the finger could then be passed, and went into a large cavity. After the operation the child took the breast readily, and is now doing well, three months after the operation. Dr. Parkman directed an attendant to pass a well-oiled finger within the opened intestine daily. (*Records of the Boston Society for Medical Improvement.* Vol. 11. p. 55. Boston : 1856.)

CASE XCVI.—S. Cabot, M. D., of Boston, Mass., reported the following case of imperforation of the rectum, to the "*Boston Society for Medical Improvement*," on the 28th of September, 1857.

Dr. Cabot saw the patient on the fourth day after birth in the evening, at which time it was reported that no discharge had taken place from the bowels. Castor oil had been given, but was rejected. An injection had also been ordered. The abdomen was now found distended. On examination per rectum, the finger passed in about one inch. When the child strained, the intestine could be felt pushing downward, the central portion of the part thus pushed down feeling considerably thicker than membrane. A trocar was thrust in, and a large quantity of faeces and meconium discharged.

On the following morning, two probes were passed in through the opening, into the intestine, as was supposed, the largest being left in, and a piece of gum elastic catheter pushed down upon it. In the evening it was reported that nothing had passed through the canula. The child had also vomited faecal matter. The opening was now enlarged by the knife and the intestine punctured; this being followed by the discharge of a small quantity of gas and meconium. Death took place on the following day.

It was found on examination, that the internal and external cul-de-sac approached to within about a half an inch of each other, and that the probe and catheter, instead of passing through the original opening into the intestine had made a false passage in the cellular substance by the side of the gut.

(*Boston Medical and Surgical Journal.* Vol. L VII. p. 238.
Boston : 1857.)

CASE XCVII.—The following case is reported by Dr. G. S. Jones. It was read before the *Suffolk District Medical Society, of Mass.*, on the 31st of October, 1857.

"The subject of this case was a fine, plump, male child, apparently otherwise in a healthy condition.

"The day after its birth, the nurse directed my attention to the fact that it had had no discharge from its bowels, although efforts had evidently been made to effect that object. I ordered castor oil to be given, and if it failed in producing an evacuation from the bowels, then injections of warm water, until the object desired was obtained. At my next visit, I was informed that neither the oil nor injections had accomplished the purpose for which they were intended, and that the little patient continued to have a "bearing down," which seemed to be accompanied with much suffering. A paroxysm of this effort to unload the bowels coming on while I was present, induced me to make a more thorough examination of his condition, than I had done at my previous visit. The abdomen was found quite tense and tympanitic; as he passed urine immediately after his birth, there was no anxiety or uncertainty respecting the functions of the bladder. The anal opening was normal, and freely admitted my oiled finger, but in attempting to pass it up into the bowel, I found that it could not penetrate further than to the second joint (about one and a half inches,) in consequence of some obstruction. While the finger was in the passage, the little fellow would strain and bear down violently, and I could distinctly feel the blind or pouched extremity of the bowel distended with meconium. The case was evidently a clear one, and after representing its condition to the parents, they were exceedingly anxious to have me operate upon the child, if there was the least chance of saving its life.

"Having decided to operate, I had the child placed upon its back in the lap of its nurse, with its legs flexed upon the abdomen. I then passed a very small bi-valve speculum, through the anal opening up to the point of obstruction, when I dilated the passage to its fullest extent, and by the aid of light, I was now able to see, what I had only previously felt, the termination of the imperforate bowel. The child now straining quite hard, forced the gut down very tensely; I then, with a spear-pointed stilette, made an opening into it, and copious discharges of gas and meconium followed the

withdrawal of the instrument. The opening was further enlarged by a cricial incision across the end of the pouch, and by the use of gum-elastic bougies; commencing with one, one fourth of an inch, and at the termination of six weeks, leaving off with one, half an inch in diameter. It is now nearly two and a half years since the operation, and the child appears well and hearty, and suffers no inconvenience from the malformation or operation. No doubt the successful result of this operation was in part due to the speculum, by the aid of which a view of the parts could be fully obtained, and a wrong direction could hardly be given the instrument, in perforating the bowel; and also to the persevering use of the bougies several times during the day and night, for a period of six or seven weeks, in dilating the opening." (*Boston Medical and Surgical Journal. Vol. LVII. p. 293. Boston: 1857.*)

CASES XCVIII.—XCIX.—The two following cases of imperforation of the rectum, accompanied by a normal anus, were reported to the "Suffolk District Medical Society," by Doctor Ayer.

First Case.—The first case was a male child. The anus was perfectly formed. On introducing the finger a few hours after birth, its passage was obstructed a short distance from the anus, but the upper portion of the intestine could not be felt pressing down upon the finger as usually happens in these cases. The child was left for two or three days, when Dr. H. J. Bigelow was called in consultation. At this time a distended pouch could be felt by the finger pressed into the rectum. There was also faecal discharge through the urethra. It was decided not to do any operation, and the child died, in eight days from its birth.—(*Boston Medical and Surgical Journal. Vol. LVII. p. 510. Boston: 1858.*)

Second Case.—The second case reported by Dr. Ayer, occurred in a female child, and what was most remarkable, of the same mother. In this case as in the first, the anus was normal and there was a passage of meconium through the urethra. Dr. H. J. Bigelow was also called in consultation in this case. The child was not operated upon and died in a few days.

Dr. Hodges made the autopsy of this case. On opening the abdomen, which was greatly distended, the rectum presented itself and seemed to fill the whole cavity. The pelvis and contents, with the external organs, were removed together. The rectum terminated in a round *cul-de-sac*, and was

dilated by gas and meconium in a fusiform shape for six inches or more above its termination, being largest just above the brim of the pelvis, where its diameter was an inch and a half at least. The anus penetrated about half an inch, and the septum between it and the rectum was three-sixteenths of an inch in thickness, consisting of loose cellular tissue. There was no communication between the vagina or uterus and rectum, though before death the color of the urine had led to its supposed existence. No other malformation than that of the rectum existed.—(*Op. cit. p. 511.*)

CASE C.—In the case of a new-born infant which died six days after birth, M. Littré found the rectum normal both below and above an obstruction composed of a fibrous mass an inch in length. This obstruction divided the rectum into two portions, each terminating in a cul-de-sac.

No operation had been performed in this instance.—(*Histoire de l'Académie Royale des Sciences de Paris. Année 1710. p. 36.*)

This was the case that suggested to M. Littré the idea of creating an abdominal artificial anus. [*Vide Chapter XI.*]

In addition to the authors already named, the following may be referred to, as having also witnessed cases in which the rectum was imperforate at a greater or less distance above a well formed anus.

Courtial. *Nouvelles Observations Anatomiques sur les Os.*
p. 147. Leide: 1704.

Fourcade. *Revue Médicale de Paris. Année 1830. tome IV.* p. 52.

Cruvielhier. *Revue Médicale de Paris. Année 1833. tome II.* p. 422.

Dupuytren. *Journal Hebdomadaire de Médecine de Paris.*
Année 1829. tome II. p. 421.

Colson. *Journal Hebdomadaire de Médecine de Paris.*
Année 1829. tome II. p. 150.

Bonn. *Papendorf. op. cit. p. 253.*

Grimaud. *Journal Générale de Médecine. tome XXIV.*
p. 238.

The following cases all belong to this the fourth species, and should be so classed. Their history and description, for obvious reasons, will be given in the chapter on *Abdominal Artificial Anus*. [Vide Chapter XI.]

CASES—CCLXIII—CCLXVII—CCLXVIII—CCLXXVII
—CCLXXXIV—CCLXXXV—CCLXXXVII.

CHAPTER VI.

THE FIFTH SPECIES OF MALFORMATION.

S E C T I O N I .

DESCRIPTION.

1. In this species, the anus being generally either absent, occluded by a membrane, or existing only in a rudimentary state, the rectum near its inferior extremity, sends off a *pipe-like* prolongation which terminates externally in a preternatural orifice at some point in the perinæum, or at various points beneath the urethra, as far up as the frænum præputii ; at the labia pudendi, or at some point in the sacral region.

2. The rectum sometimes terminates in two extremities in the perinæal region, each one by an abnormal anus, both performing the functions peculiar to the natural anus, and situated more or less distant from each other. The one may be larger than the other, and give egress to the greater portion of the contents of the bowels. Dr. Bushe has mentioned such a case. [Vide Case CXIII.] Dr. Green also relates a singular instance of the same kind. [Vide Case CXIV.]

3. These adventitious canals of the rectum differ from the ordinary fistulous passages only by being more perfectly organized and being entirely free from induration. They remind me very much of the fistulous sinus which the rectum, in order to relieve itself sometimes sends off from beyond a permanent stricture of that intestine, when the contraction exists a few inches above the anus. They may be regarded in the character of supplementary conduits, and cannot be

considered as either an arrest of development, nor as an excess of development, but as a purely pathological formation.

4. In some of these instances the congenital elongation of the rectum in the form of a fistulous sinus is covered merely by the thin skin of the perineum, so that the meconium can be seen through it, and the course of the canal traced to its termination. The celebrated M. Cruveilhier reports a very interesting case which I have presented in full translated from the original. [Vide Case CV.]

5. A few instances are recorded in which the sacrum was found to be so congenitally malformed, so very deficient as to permit the extremity of the rectum to perforate it, and open externally in an abnormal anus. M M. De La Fayc and Lacoste mention cases of this character. [Vide Cases CX—CXI—CXII.]

6. Papendorf, as well as others, has classed all such cases, I am here considering, with those of his species which he denominates—"Atresia Ani Vesicalis—Urethralis—Vaginalis," but as the rectum in these cases terminates externally, and has no communication whatever with the genito-urinary passages, they cannot therefore be so classed with propriety. I will, however, have occasion again to refer to these accidental canals of the rectum in the next chapter, in which I will show, that they, instead of opening externally, by an abnormal anus as in these cases, do sometimes open internally into the genito-urinary passages by an abnormal anus.

7. The prognosis in these cases is generally favorable. Should the accidental canal be tolerably large with a corresponding orifice, the little patient may live for some time in comparative comfort, if the other requisites of life are present, but as soon as the diet of the child is changed, and the stools become more consistent or hard, and are voided with greater difficulty, the troubles commence which, unless relieved by an operation, must sooner or later end in death.

S. In those cases which the anus is occluded by a simple membrane only, the operation almost always succeeds. On the contrary when this membrane is very thick, or when there is no trace of an anus, and a considerable portion of the inferior extremity of the rectum deficient, the operation of course is much more difficult, and the result more uncertain.

S E C T I O N I I .

THE TREATMENT.

THE indication to be observed in the treatment of those cases of this species which occur in the male subject, is to isolate completely the accidental canal from the end of the rectum, and to establish the artificial anus in the perinæum at the normal site of the anus. The *pipe-like* passage being separated from the rectum should now be treated as an ordinary anal fistula, by inserting into it a fine silk ligature and gradually destroying its wall; or by incising it with a small narrow sharp-pointed bistoury, guided by a flexible, grooved director.

I will now give the method which Professor Dieffenbach proposes for the treatment of those cases which occur in the male subject.

The Process of Dieffenbach. At the place of the normal anus a small oval flap of integument is incised, being held with the bull-dog forceps, the skin is dissected away with a small sharp scalpel. After its removal, the wall of the rectum becomes visible, which must not be incised. One quarter of an inch in front of this longitudinal wound and towards the commencement of the scrotum, a vertical incision is made in the raphé by means of a fold, about one-quarter of an inch long and deep enough to reach the prolonged rectum at this point. The cellular tissue is now separated from each side of

the rectum, or a large probe is introduced beneath the rectal prolongation, and which is completely divided with scissors in a direction vertical to its axis. Then by the crucial wound, the free end of the rectum is seized with the bull-dog forceps and is drawn into the oval wound designed for the anal opening; after having completely separated it from its cellular adhesions, the end is brought through the opening, and by means of six points of suture the edges of the intestine are united with the cutaneous edges of the oval wound. The faecal matter having been expelled, there is passed into the isolated and now abandoned end of the intestine, by means of a large eyed probe, a coarse cotton thread, the ends of which are tied with a knot, and the wound is then covered with lint. The formation of the anus is now perfect, and is soon followed by healthy cicatrization of the wounds. The useless anterior extremity causes indeed some trouble by means of its mucous lining, but it requires little attention until the effects of the first operation are overcome. A caustic crayon may be passed through the canal, or a large mèche of lint covered with some irritating ointment may be introduced, and after remaining in some time, it may be removed and perfect compression established, by means of lint and strips of adhesive plaster. If after all this the obliteration of the canal is not effected, it may be incised, and in this way the object attained. (*Operative Chirurgie. Band. I. S. 675. Leipzig: 1845.*)

Dieffenbach successfully executed this operation upon two male children. [Vide Cases CIII—CIV.]

Dr. Friedberg has also proposed a method of operating in such cases, which differs somewhat from that of his illustrious countryman Dieffenbach. This operation he successfully executed in the highly interesting case of the child Albert M—.

As this case fully illustrates Dr. Friedberg's method of operating, I have given it entire, translated from the French, being, as I remarked before, unable to obtain a German copy of his valuable essay. [Vide Case CXVII.]

With regard to the operation of Dieffenbach, Dr. Friedberg says:

"In the case of Albert M—, I thought best to adopt a method somewhat different from that of Dieffenbach, and which attains the end with greater simplicity, and may be employed in cases of union of the rectum to the bladder, urethra and vagina; but as the method of Dieffenbach is distinguished by the fact that when the skin and cellular tissue are removed, the rectal wall is visible, it would not answer in cases such as that of Albert M—, in which the closed extremity of the rectum is very high up, and since this fact cannot always be determined before the operation, it is preferable to perform it in such a manner as will be adapted to any possible condition. When the rectum, interrupted in the cavity of the pelvis, sends off a canal-like prolongation opening into the bladder, or the vagina, or is prolonged towards the exterior, passing above the position of the normal anus, and opens near the scrotum, (as in the case of Albert M—) or in the penis, I should perform the operation as I have already stated above in ordinary cases of anal imperforation. I should cut the canal as I did in Albert M—, if it were found in the vicinity of the perinæum; in a contrary case I should not trouble myself about the formation of the anus, but rather attend to the obliteration of the canal, which object we may hope to effect by diverting from it the passage of faecal matter. The obliteration may be rapidly effected from the point of departure from the rectum, as the post-mortem of Albert M— clearly showed, but if it should be attended with considerable delay, I should attempt cauterization by means of a wire heated to a red heat by electricity." (*Op. cit.*)

In the formation of the artificial anus in those cases in which the rectum terminates by an abnormal orifice at the labia pudendi, the vulva, &c., the short accidental passage should, if possible, be obliterated without dividing the septum separating the artificial from the abnormal anus, as the division of the circular fibres of the sphincter going to the vagina, and perhaps the incontinence of the faeces consequent upon the section of the canal, might be of serious consequence ever after. Friedberg, however, does not at all fear any evil consequences to follow the complete incision of the canal. He says that if it is cut and properly treated, it will granulate and

cicatrize, and this will the more readily follow if the knees of the child are bound together; and if the divided halves of the external sphincter ani muscle are united by a healthy cicatrix, there is no cause for fear as to the functions of that muscle. I confess, however, that I should have fears, and would decidedly prefer to obliterate the canal by the "*Galvano-Caustic*" method of Middeldorpff, of Breslau. This would be attended with no danger, and would most certainly succeed. Dr. Friedberg himself recommends this method in other cases, in which, in my opinion, it is not as applicable as in these.

In cases of this character some surgeons recommend the practice of M. Vieq d'Azyr in the instances in which the rectum opens into the vagina. His operation is certainly very simple and easy of execution, but is liable to the objection I have already stated.

The Process of Vieq D'Azyr. A straight bistoury guided by a grooved sound introduced through the fistulous opening and passage into the rectum, and directed from before backward, or from the perinæum to the coccyx, or from above downward, would divide all the tissues which had caused the deviation. A canula fixed in the rectum near the posterior angle of the wound, would enable the solution of continuity in front to cicatrize, and the matters to re-acquire their normal direction. (*Mott's Velpeau.* Vol. III. p. 1087. *New York:* 1847.)

In those cases in which the rectum terminates by two abnormal apertures in the perinæum at the same time, differing in size, and more or less separated from each other, Mr. Ashton, of London, says—"Surgical interference will not be required if either opening be of sufficient size for the free discharge of the faeces; but if both be so small that the process of defecation cannot be properly performed, the septum between them must be divided, or that which corresponds

most clearly to the natural position of the anus must be dilated by pressure, and by incision if necessary. (*A Treatise on the Diseases, Injuries, and Malformations of the Rectum and Anus. Chapter XIX. p. 337. London: 1854.*)

In those cases in which the rectum terminates by an abnormal anus in the sacral region, I am not aware that any treatment has ever been proposed.

SECTION III.

CASES AND REMARKS.

CASE CI.—Fabricius of Hildanus mentions the case of a child which had an abnormal anus situated at the root of the penis, the orifice of which was about the size of a pea, and from which meconium and gas escaped. In this instance there was no trace of an anus, a thick, strong, and hard membrane covering the place it should have occupied, and extending itself forward to the abnormal opening at the root of the penis. The operation of incising this membrane, was performed on the sixth day, and the result was a cure.—(*Observationum et Curationum Chirurgicarum. Centuria. Centur. I. Observ. 75. p. 54. Basil: 1606. Folia.*)

CASE CII.—Dr. George Tobie Durr, a physician of Augsburg, relates the case of a male child having an imperforate anus, in which the membrane that closed the anus was prolonged forward to the anterior part of the perinæum, in which was a small opening through which the meconium drained off. Two months after the birth of the child, Durr performed the operation of incising this membrane up to the natural place of the anus. The faeces were voided in abundance and the cure was ultimately completed.—(*Miscellanea curiosa, sive ephem. acad. natur euriosor. decur. II. ann. VI. observ. 62. p. 3. 1668.*)

CASES CIII.—CIV.—Dieffenbach mentions the two following cases of imperforation of the anus attended with a prolongation of the rectum opening in the perinæum.

He observed this elongation of the rectum in two male

ehildren, one a few weeks, and the other two months old. In the first, the somewhat small anal orifice was formed in the posterior part of the scrotum. In the second it opened on the anterior face of the scrotum. In this last case the elongated portion of the rectum, contracting towards the anterior part, was nevertheless large enough to admit an elastic catheter of medium size. In both children the faeces were voided through the fistulous canal and abnormal anus with but little difficulty, and in each case Dieffenbach operated with complete success.—(*Operative Chirurgie. Band. I. S. 676. Leipzig: 1845.*)

Dieffenbach was the first surgeon who proposed “*Anaplasty*” by lengthening the rectum in the male subject.

CASE CV.—The celebrated M. Cruvielhier gives the details of a highly interesting case of a male infant who presented a eongenital imperforate anus, with a prolongation of the reetum in the shape of a narrow fistulous passage formed in the very substance of the *rappé scroti*, and terminating in an abnormal opening immediately below the meatus urinarius.

“A woman twenty-nine years of age, who was pregnant the second time, and who was an invalid and considerably œdematos during the second month of her pregnancy, was delivered on the sixth day of July, 1828, at the *Lying-in Hospital*, of a male child at full time—living and presenting the following peculiarities. The child was poorly developed, and afflicted with marasmus; it was besides reduced to a purely vegetative life; its body was cold; its skin discolored; its limbs contracted; it uttered nothing but dull groans, and with the exception of some slight spasmodic contractions, it was nearly motionless.

“There was no anus, but at the situation which the normal anus should occupy, there was an elevation of the skin caused by an accumulation of the meconium. The raphé was prominent and knotty, and it was easily observed that a narrow canal penetrated it, as it was distended with meconium which could be seen through the thin skin which covered it. This canal ultimately terminated under the glans penis in an abnormal opening which gave issue to meconium.

“An incision was made into the raised portion of skin corresponding to the anus; a great quantity of meconium escaped; nevertheless the child remained in the same condition; cold, motionless, discolored, and voiding by the nose, the milk and sweetened water which were introduced by the mouth. It was momentarily expected to die, and yet its life

was prolonged to the fifteenth of July, nine days after its birth.

"*Autopsy.* It was found that the rectum terminated in a cul-de-sac, that it was distended by meconium and gas, and of sufficient size to admit the index finger. Near its termination it gave off an accidental canal, very narrow and lined with a mucous coat. This canal at first directed its course from behind forward, and from above downward across the fatty tissues of the perinæum, reached the posterior extremity of the raphé through the body of which it continued, and finally opened under the glans penis. This opening readily admitted a slender probe, allowing it to pass the whole length of the canal. There was no communication between the rectum and the bladder, between the rectum and the urethra, nor between the rectum and vagina. [Vide *Plate VIII. Figs. 1,2,3,*]

"The extraordinary symptoms that presented themselves in this case could not properly be attributed to the malformation just noticed. There must have been a remarkable deformity of the organs of circulation and respiration. There was a perceptible defect in the formation of the blood, but it was difficult to define exactly what it was. An injection made by the left carotid artery filled the whole circulatory system, arteries and veins, and returned through the mouth and the nostrils." —(*Anatomie Pathologique du Corps Humain. tome I. Livraison I. Planche VI. Figs. 6, 7, 8. Bruxelles: 1833, 1834.*) ..

CASE CVI.—Mr. J. F. South, one of the surgeons to St. Thomas' Hospital, London, reports the following case :

"I had under my care, very many years ago, a case of imperforate anus similar to that mentioned by M. Cruvielhier. (*Anat. Pathol. livr. I. pl. V. fig. 6.*) At the time of birth there was not any opening, but a slight puckering marked the place of the anus, and this was protruded each time the child cried. In front of the scrotum, and in the track of the raphé, as it passed on to the prepucce, was a small aperture, just large enough to admit the entrance of a probe, and from it, when the child cried, a small quantity of meconium passed. I cut upon the puckered skin, but it was full an inch before the rectum could be reached, and I then opened it sufficiently to admit a large urethral bougie, and the meconium readily escaped. A probe introduced at the opening before the scrotum, passed along a canal, beneath the urethra, through the perinæum, becoming larger and larger as it approached the rectum, in which it terminated. No bougie, or any thing else, was left in, as I thought keeping the bowels loose, would

have been sufficient to prevent union ; however, in the course of a fortnight the wound had closed, and no motion was passed except by the aperture in front of the scrotum. I therefore had to ent into the rectum again, and a piece of bougie was then introduced, to be worn constantly, but removed three or four times a day, for emptying the bowels. This went on very well for a short time, but probably from negligence, the scar contracted, and at the end of three months, the anal opening would not admit, even the end of a probe. The scar was therefore again divided, and a larger bougie introduced and worn for a fortnight ; after which a short pewter pipe, about the thickness of the little finger, with a circular shoulder to prevent it slipping entirely into the gut, was introduced, so that the motions might pass continually by it, and the opening be established. Two months after, the pipe having slipped out, and been neglected, the opening had again closed, and again required enlarging with the knife to re-admit the tube. The parent's negligence again compelled the dilatation of the aperture with the knife, and a large bougie was directed to be passed frequently. I did not again see him until he was seven years old, when he was a well-grown boy, but with an enormously distended belly. The anus continued open, though not very sufficiently, and the orifice before the scrotum was still open, and occasionally motion passed by it. I was desirous of removing this unnatural canal, but the mother was averse to it, and the child's unhealthy appearance did not lead me to expect that he would live very long. I had entirely forgotten him, when eleven years after, he being then eighteen years old, I was surprised on seeing him a fine healthy young man, who said he was the person on whom I had previously operated. The appearance of the anus could be compared to nothing else than a bullet-hole in a board ; he said he had no difficulty in passing or retaining his motions ; but it was quite evident from his linen, that there was a continued oozing. The opening in front, instead of being near the *frænum præputii*, was now close to the scrotum, and a small quantity of stool occasionally escaped from it. On examining more closely, I found the anal orifice completely filled with a protruded portion of the lining of the rectum ; it, however, offered no obstruction to the finger, which readily passed up as far as the knuckle, and was received into the large cavity full of feculent matter, and running forward along the perineum, beneath the membranous part and bulb of the penis, to the back of the scrotum where the canal narrowed, and would only admit the finger ; with this the opening before the scrotum communicated. It was

curious, in this case that, although there was an entire absence of the sphincter muscle, the stools did not pass involuntarily; the protruded fold of the internal membrane seemed to form a valve which prevented ordinarily the escape of the stool, and compensated the deficiency of the sphincter. I proposed to him the removal of the continuation of the bowel into the perinæum, but he would not submit to any operation. I have not seen him for the last eleven years." (*Saint Thomas' Hospital Reports*, p. 121. London: 1836. Also *English Translation of Chelius' System of Surgery*, Amer. Ed., Vol. III. p. 39. Philadelphia: 1847.)

CASE CVII.—M. Monad gives an instance of a male child having an imperforate anus, the rectum being prolonged in the form of a fistulous canal to within a short distance of the glans penis, where it terminated in an abnormal anus. (*Nouvelle Bibliotheque Médicale*. tome II. p. 447. Paris: 1829.)

CASES CVIII—CIX.—M. Fristo mentions the cases of two infants having each an abnormal anus. In one the rectum opened in the loins, and in the other it opened upon the dorsum of the penis. (*Mott's Velpeau*. Vol. III. p. 1086. New York: 1847.)

CASES CX—CXI.—M. De La Faye gives the description of two children, in both of which there was found an abnormal anus in the sacral region, the orifice in each being sufficiently large to admit the little finger. In one of the cases a portion of the rectum passed through the opening in the sacrum, and formed a kind of hernia. (*Principes de Chirurgie*, p. 358. Paris: 1811.)

CASE CXII.—M. La Coste mentions the case of an infant in whom the rectum perforated the sacrum and formed an abnormal anus, through which the faeces passed. (*Bulletin de la Société Médicale d'Emulation de Paris*. Octobre, 1822, p. 417.)

CASE CXIII.—Dr. Bushe mentions a case in which two anal apertures existed at the same time. He says: "About four years ago, Dr. William Power very kindly allowed me to examine a fine healthy child, a few days old, in whom the rectum terminated by two extremities, one being placed a little more anterior than natural, while the other, though also on the median line, was situated nearly an inch further back.

This last, which was the smaller of the two, did not discharge more than one-third of the faeces, and as nearly as I could ascertain with a probe, was about one inch and a half in length." (*A Treatise on the Malformations, Injuries and Diseases of the Rectum and Anus*, p. 44. New York: 1837.)

CASE CXIV.—Dr. W. A. Green reports the following singular case of extensive congenital deformity:

"I was called to Mrs. L——— on Monday, January 5th, 1858. She had been in labor with her second child. Nothing unusual occurred during gestation or parturition. She gave birth to a child, over the average size, which cried lustily, seeming to indicate that every function was regularly and properly performed. Upon a close examination, the following deformities were found to exist: The spine began a curvature at the superior third of the cervical vertebrae, in a direction toward the right hypochondrium, to the top of the sacrum. The concavity of this curvature was filled with two or three sac-like appendages, containing, apparently, a fluid and gas, moveable and compressible. 'A want of the spinous processes of three or four contiguous vertebrae, is not a very uncommon species of monstrosity.' 'This constitutes *spina bifida*.' 'There is usually a soft, fluctuating tumor, in the malformed bones, caused by water contained within the sheath of the spinal marrow.' [Vide Ramsbotham's *Obstetrics*. (Keating.) Appendix M, p. 622.] Below, upon each side of the sacrum, were two appendages, resembling the mammae of woman. In front, between the point where the umbilicus was attached, and the symphysis pubis, was a protrusion of intestines, within the peritoneal sac, reducible by pressure, but returning when removed. Immediately under this hernia, the urine trickled, continuously, from two or three small openings, which could not be entered by the smallest probe. Below this, and hanging pendant from the middle of the symphysis pubis, were the testicles, perfectly formed. There was no trace nor any portion of the penis. Behind the symphysis pubis, in juxta-contact, and at the extreme anterior portion of the perineum, was an anus, well formed, through which the faeces passed. About an inch and a half behind this, at the point of the os coccygis, was another anus, which, upon examination, proved to be imperforate—a cul-de-sac.

"The face of the infant, when first born, was perfectly black, but is changing to a mulberry hue. Numerous marks are upon its body, such as are frequently seen upon children. Every other portion of the child seems perfectly and symmetrically developed. Its bowels are regular, it is healthy, and

rapidly growing. The complete, entire absence of the penis, or any portion of it—the unusual, unheard-of positions of the anus, testicles, and anomalous passage of the urine, are extremely remarkable and interesting. The bladder has no urethra, through which to pass its urine, so these apertures must come in direct contact with, and even enter the fundus of the bladder.” (*Southern Medical and Surgical Journal. Augusta, Ga., 1858.*)

CASE CXV.—M. Bouisson of Montpellier, relates a case of this congenital vice of conformation which was observed in the practice of Delmas.

A child was brought to Delmas, from seven to eight days old, which was born with an imperforation of the anus, and with a small corrugated opening, red and excoriated, which existed about half an inch from the median line on the side of the right nates. Through this opening the faecal matters were constantly oozing, the liquid state of which allowed their rather easy escape. It constituted a true congenital fistula of the anus, on which Delmas operated, at the same time he remedied the imperforation by an incision. The obstructing membrane was cutaneous, mucous, with conservation of the sphincter. M. Delmas incised it, introduced his finger into the rectum, when he recognized, at an inconsiderable height, the end of a grooved probe introduced into the accidental opening. The operation was performed as in the adult, and followed by the rapid recovery of the infant.—(*Thése de Concours de Paris. Année 1851.*)

CASE CXVI.—A similar case in every respect to that of Delmas' was communicated to the *Chirurgical Society of Paris* in 1850, by M. Denouilliers. This surgeon operated successfully both on the anal occlusion and the fistulous sinus in this case.—(*Practical Treatise on the Diseases of Children, by M. Bouchut. Bird's English Version, p. 516. London : 1855.*)

CASE CXVII.—Dr. Friedberg reports the following highly interesting case of imperforation of the anus, accompanied by a fistulous prolongation of the rectum opening into the posterior wall of the scrotum.

“ Albert M—, the fifth child of a healthy woman, was born on the fourteenth day of July, 1852, at nine o'clock P. M., by natural labor. During the following night and day the child took the breast with reluctance, even from the first. It passed urine frequently, but without any mixture of faecal

matter. Three days after birth, the child having as yet had no regular stool, and exciting the anxiety of the mother by its cries and restlessness, she examined the perinæum and found in the posterior wall of the scrotum a small opening in place of an anus, and through which a little meconium passed when the child made violent straining efforts. The physician called in on the following day, prescribed warm cataplasms upon the abdomen, and syrup of rhubarb internally. From time to time the abdomen became distended, the child groaned and made efforts to stool, until faecal matter passed which soon became yellow. Although frequently put to the breast, it sucked very little, but slept in a very unquiet manner, and from the fourth week it began to waste away surprisingly. Towards the sixth week after its birth, as the mother said, there occurred a remarkable attack, during which it became pale as a corpse, very restless, breathed almost imperceptibly, drew up its knees, and seemed to the mother as if dying. This attack was repeated several times during the two following weeks, and especially as the mother was convinced, when the child had had no evacuation for several hours.

"The attending physician sent for me on the nineteenth of September, 1852, to make a more complete diagnosis. The examination gave me the following results. The child, for its age, two months, was very small and reduced to the last degree of emaciation. The saliva was of a yellow color, and so was the whole body, especially the countenance; the eyes were sunken and surrounded by a greenish blue circle, the voice was very feeble, and the cries replaced by feeble groans. The abdomen was moderately distended, hard and sensitive. There was a slight malformation of the penis; in fact the internal orifice of the canal of the urethra, opened in the form of a cleft about three lines from the end of the glans penis. The genital organs were quite in the rear of their normal position. Three or four lines below the point where the rectum terminated, there was found in the posterior wall of the scrotum, an opening with its border turned inward, only large enough to admit a small sound. I introduced such an instrument half an inch, and had the sensation as if I had introduced it into a cutaneous canal which extended no further in that direction; however, as I had seen a greenish colored matter pass from the opening, I could not doubt the existence of a continuation of this canal uniting it with the intestine. I introduced a whalebone sound, at first directly upward, then more towards the rear, in the direction of the middle of the pelvis, as much as three inches, without meeting a dilatation of this canal. At this depth the sound was arrested by an ob-

struction such as caused it to bend. The tuberosities of the ischium projected when compared with the remarkably wasted condition of the child, and seemed to be pressed close to each other, so that the space which separated them was much narrower than usual. The coccyx was bent quite to the front; the perinaeal raphé extended as far as the coccyx and was not well marked; and not even the slightest trace of an anus was found. During the efforts made shortly after the use of the catheter, and whilst the abdominal walls were in full action, I could not feel any fluctuation in the perinaeal region. The efforts were followed by an evacuation, lasting several minutes and passing through the fistulous opening, and also by an excretion of urine of a natural color flowing by the external orifice of the urethra. Whenever with my right fore finger placed in the normal position of the anus, I pushed the perineum towards the pelvic cavity, and with the left hand pressed the intestines from the anterior abdominal wall towards my fore-finger, I could not perceive the slightest fluctuation which could induce me to suspect the vicinity of the terminal end of the rectum. Little was discovered by auscultation of the perineum, during percussion of the walls of the abdomen.

"Some hours later, I undertook the formation of a perinaeal anus. The child was placed on its back, upon the table, the legs flexed and held asunder by two assistants, while a third held the small silver catheter which I had introduced into the bladder; then I introduced a silver sound into the opening to the depth of half an inch and placed it in the hand of an assistant. Starting at this point, I incised the skin along the perinaeal raphé, to within three lines of the os coccygis, and then divided the soft tissues, layer by layer. An artery was cut and had to be tied. Presently the sound escaped from the canal which could not again be found. I ceased the attempt to introduce the sound because I feared I would injure the bladder, and because the operation seemed to fatigue the child; I rather sought to penetrate the pelvic cavity as soon as possible, and whilst an assistant with the hand pressed upon the abdomen of the child, pushed the intestines downward towards the pelvis, with my finger which was introduced to the depth of two inches, I discovered a moderately soft body situated between the bladder and the smooth promontory, its anterior portion having a round form, and adhering to the posterior wall of the bladder, whilst its posterior face was considerably extended along the promontory. By the touch it could be slightly brought down, and this made me suppose that it was the intestine filled with solid faecal matter. I seized it by its inferior wall with artery forceps, and brought it down

carefully, whilst with the end of my finger, I destroyed all the adhesions attaching it to the neighboring parts. In front I could not altogether succeed in doing this; but elsewhere I succeeded so completely that I was able to bring down the posterior portion into the perinæal wound. Confirmed in my supposition that it was a part of the dilated rectum, I seized it firmly with a pair of forceps and a crochet, and between the two instruments I made an incision longitudinally, from front to rear, about nine lines in length. There immediately passed, by the increasing efforts of the child, some yellowish brown matter, the evacuation of which I aided with a spatula. Very shortly, liquid faecal matter passed, of a green color and acid odor. I then cleansed the wound with injections of cold water. I divided the anterior wall of the *canal*, as far as I could recognize it, and then united the edges of the intestine with the lips of the perinæal wound by frequent points of suture; then I united the edges of the wound in front and rear of the anterior and posterior angles, by means of suture, and likewise between the angles of the intestinal wound and those of the perinæal wound. The most anterior suture of the perinæum was placed in such a manner that it traversed the mouth of the *canal*. I prescribed applications of cold water to the perinæum, and frequent lotions to the wound. During the night the child slept tranquilly, but the next day it uttered frequent groans, and drew up its legs as if suffering from pain in the abdomen. It took the breast but seldom, but drank cold water with avidity; respiration was accelerated, and the pulsations of the heart were unusually frequent. The lips of the wound as well as the surrounding parts were red and somewhat swollen; yellow liquid faecal matter of very acid odor, was evacuated in small quantities every five or ten minutes through the newly formed anus. I prescribed rhubarb and syrup of saffron, and caused warm poultices to be placed on the abdomen, after a restless night; the next morning, however, the child was better. The redness and swelling of the edges of the wound were lessened, and they seemed thoroughly united, except at the anterior angle. The condition of the child improved daily; suppuration continued in the vicinity of the fistulous opening, without, however, presenting any mixture with faecal matter. Evacuations occurred only every hour, or half hour, and the feces were yellow in color and of the consistence of pap.

"The sixth day after the operation, the anus took an oval form; at the commencement of the excretion I observed dilating motions of the perinæum, and at the close the contraction of the anus was made manifest by the gathering up of the su-

ture. Some of the needle punctures opened into each other, and discharged a slight quantity of pus; for this reason I took away the points of suture in question, and the others, two days after. The union of the edges of the wound, was everywhere complete.

"The needle punctures which had been open were now closed, as was also the anterior angle, still suppurating, near the scrotum. On the fourteenth day after the operation, the cure was complete, the jaundiced discolouration had disappeared, and the child prospered in a remarkable manner. From this time it had three or four healthy stools, during the twenty-four hours; the appetite was good, so that besides the breast, the child took other food, and none of the preceding morbid phenomena reappeared.

"When in the month of December, 1852, I again saw the child, it was suffering from dentition, and often carried its hands to its mouth; the gums were swollen and sensitive to the middle of the lower alveolar edges. The child wasted rapidly, it cried out all night long and began to cough. On the twenty-third of December, I found in the upper lobe of the left lung, and in the upper and middle lobes of the right side, a rough vesicular murmur, respiration was obscure, as also was the sound produced by percussion. Nevertheless the child breathed a little, but with difficulty, and presented a bluish color of the face. The pneumonia resisted treatment and terminated fatally on the twenty-fifth of December, 1852.

"The autopsy performed the next day, gave the following results.—In the cavity of the cranium, there was nothing remarkable; in the large bronchia, a catarrhal secretion, but the mucous membrane was not red. The posterior and lower portion of the inferior right lobe was filled with blood; the middle portion, and the lateral portions at their top on being cut allowed a large quantity of sanguinolent and frothy serum to escape, and the bronchia contained a viscid catarrhal product. No portion was found to contain air. The left inferior lobe was studded with apoplectic kernels, from the size of a linseed to that of a pea, and near them the pulmonary tissue was filled with blood, partly extravasated, partly fluid which the latter especially, was easily expressed. In these places and around them, the pulmonary tissues contained no air, and upon pressure gave out a stringy serous exudation. In the pulmonary vessels, comprising the bronchial tubes, as far as I could follow them, I found no blood nor any other morbid matter. The right side of the heart was filled with black liquid blood, and at the left posterior wall of the ventricle there was found only a soft fibrous cord, passing into the

pulmonary arteries; the left side of the heart contained no blood; the foetal conduits were closed. In the abdominal cavity, as soon as the omentum, much emaciated, had been raised up, a dilatation, filled with gas, and comprising the end of the ileum, and the upper part of the descending colon, jutted out. The rectum appeared very short, and of unequal size, the narrowest portions, however, were of normal diameter. About one inch above the anus there proceeded from the anterior wall of the rectum, a cord, the size of a large knitting needle, directed towards the vesical triangle, and attached to the bottom of the bladder by cellular tissue. Thus fixed and becoming smaller and smaller, it at last bent its way to the middle surface of the prostate, towards the bulb of the urethra, and having reached its posterior wall, was lost beneath the fistulous opening. It was entirely filled up, and it was only at its upper and larger portion, that the existence of a canal could be perceived, which had, however, no longer any communication with the cavity of the rectum. The interior of the canal no longer presented the appearance of mucous membrane. Where the cord left the rectum the latter presented on its internal surface a depression of a medullary nature. The large intestine contained a yellow faecal matter, liquid and semi-fluid; the mucous membrane was healthy throughout. The artificial anus could not be distinguished from a normal anus. At its upper portion the circular fibres of the rectum were so strongly developed, that they represented a real internal sphincter. The cicatrized needle marks were clearly recognized. The liver was very large, of a nutmeg shape and poor in blood. The biliary ducts were flexible, the gall bladder was full of yellowish brown bile; the mucous membrane healthy. Several of the mesenteric glands were much swollen and not free from tubercles. Besides this the abdominal cavity presented nothing remarkable. The muscles of the perineum did not seem more feebly developed than usual."—(*Recherches Cliniques et Critiques sur L'Anus Artificiel. In Archives Générales de Médecine de Paris. Juillet, 1857. p. 54.*)

CASE CXVIII.—M. Olinet relates the case of a female child in whom the rectum opened within two lines of the vulva, the rectum being prolonged to this point by means of a canal. Through this abnormal anus the meconium was discharged. (*Journal Universel des Sciences Médicales. Paris: Février, 1820.*)

CASE CXIX.—Burns thus describes the case of a female

child having an imperforate anus, accompanied with an abnormal anus:

"The rectum, instead of terminating at the usual place, perforated the posterior wall of the vagina; then occupying the canal of the vagina, it passed through the vulva, and projected about an inch beyond the labia pudendi, bearing a distinct resemblance to an imperfectly formed penis. It was of considerable size, possessing a writhing motion, and freely discharged meconium by an orifice at its apex." (*Edinburgh Medical and Surgical Journal*, Vol. I., p. 137.)

CASE CXX.—M. Velpeau says that M. Brachet published the case of a little girl who had an abnormal anus situated at the *fourchette*; the normal anus was imperforate. (*Mott's Velpeau*, Vol. III., p. 1087. *New York*: 1847.)

CASE CXXI.—The following case of imperforate anss, with an abnormal opening of the rectum in the posterior part of the vulva, is reported by M. Caussade. The operation in this case was followed by complete success:

"The subject of this case was a female infant who, when two months of age, was in an almost dying condition, taken to M. Caussade. This infant vomited faecal matters; had hiccup; the pulse was small, contracted; the face livid, and covered with sweat; the voice almost extinct; and the abdomen much distended. She had been placed out to nurse immediately after her birth; her cloths were observed to be wet and slightly soiled, but the nurse never observed any alvine evacuation as in other children. As the little one was, however, in good health, and even grew fat, the nurse continued to suckle her without seeking the cause of the absence of alvine evacuations. On examining the infant, M. C. found that there was no anus, or trace of one. She passed through a capillary opening at the posterior part of the vulva, very near to the hymen, a thick and yellowish fluid, which, when the infant cried and struggled, spouted out as if discharged from the spout of a small syringe. During the straining of the infant, a tumor projected in the perinæum, and in a part of the breech. To relieve the perforation, M. Caussade made an incision three or four lines in depth in the place which the anus ought to have occupied. He found at the bottom of the incision a mass of hard and yellow faecal matters. It was necessary to break them up, and they were removed by means of a scoop. Several injections were administered, which brought away a large quantity of yellow liquid matter. The wound was kept open by a lint tent. The next day the

fæcal matters were readily discharged, all the unpleasant symptoms ceased, and the health of the little patient was restored." (*Gazette des Hôpitaux de Paris, Mars 29, 1834.*)

CASE CXXII.—George Hayward, M. D., of Boston, Surgeon to the Massachusetts General Hospital, reports the following interesting case of imperforate anus, the rectum terminating in the labia pudendi by a small abnormal opening, which performed the functions of an anus. The operation in this case was attended with complete success.

"About eighteen months since, I was desired to examine a female infant, three or four days old, in consequence of a malformation about the anus. On inspection no external opening of the bowel could be discovered; but in separating the labia, it was found that the urethra and vagina were perfect, and at two or three lines behind the vagina, there was a small orifice, sufficient to admit the large end of a probe, through which the fæces were discharged.

"The child did not seem to suffer at all, and I heard nothing of it for more than a year, though I visited frequently the family to which it belonged. A few days after it was weaned, which was in January last, I was called to visit it, and was told, that since the change in its diet, it had apparently suffered very much in its efforts to discharge the contents of its bowels. These efforts were violent, almost constant when the child was awake, and afforded scarcely any relief. Since it had ceased nursing, it had become emaciated and very feeble, and had but little continuous or quiet sleep.

"After it was weaned, its diet consisted of milk and barley flour, and the fæces, no doubt in consequence of the change in the food, had become of much greater consistence. The contents of the bowels were forced out by violent straining in small pieces, quite solid, about the size of a duck shot.

"On examining the parts, I found that the outlet of the bowel was but little, if any larger than when I saw it before, and the large end of a probe did not pass very readily into it. The moment, however, that it was introduced, strong convulsive efforts followed, and it was evident that there was a great accumulation of fæcal matter in the intestine, lying in the hollow of the sacrum.

"As it was apparent that the child would not live long in this way, I suggested the expediency of attempting to relieve it by an operation; though I confess that I was not very sanguine as to its success, nor did I give a very favorable prognosis to the parents as to the result. They consented, how-

ever, and on the following day, Jan. 26th, 1853, I performed it in the following way :

"The child, having been rendered insensible by the inhalation of rectified sulphuric ether, was laid on a table. A director of the smallest size was introduced, though with difficulty, about an inch into the bowel, with the groove towards the sacrum. With a very narrow knife passed into the groove, I enlarged the external opening of the bowel sufficiently to admit my fore-finger, and continued the incision upwards nearly to the end of the director; I then found that I could pass my finger readily into the bowel, which appeared to be of the usual size, till within about an inch of its outlet, where it had been contracted into a small canal, certainly not one fourth as large as the bowel above.

"I did not consider it necessary to carry the incision any farther; nor did I deem it safe; partly from the fear of hemorrhage, and in part from an apprehension that if I did so I should destroy the retentive power of the bowel, as sometimes happens from an operation for fistula in ano, where it has been found necessary to divide the parts high up.

"Lint was applied to the edges of the wound, and a cloth wet in cold water laid over it. There was no bleeding, except a slight one at the time; the child was evidently relieved, though the faecal matter was not discharged till castor oil was administered on the following day.

"In two days after the operation I introduced a moderate-sized rectum bougie, of a diameter as large as that of the bowel, and this has been done daily to the present time. In a very few days the wound healed, and the child has apparently suffered no inconvenience since. It has regular evacuations of a proper consistence without the use of medicine. It has the entire control of the bowel, and has regained its health. It is now vigorous and active as female children of that age usually are.

"I examined the parts very recently, four months after the operation. The anus can now be seen without separating the labia; but the perinæum is covered with the same delicate mucous membrane that lines the vagina. Whether this will ever be productive of inconvenience, it is not perhaps easy to say; it is probable that this membrane may lose some of its sensibility, but there is no reason to suppose, that it will acquire the properties of the ordinary covering of the body.

"This case must be regarded as a favorable one of malformation of this kind. In some that have been described, the opening into the vagina was as large as the diameter of the bowel, and there was no sphincter; while here the lower

part of the rectum was contracted into a narrow canal, furnished with muscular power sufficient to prevent the involuntary discharge of the faeces. Where there is no provision of this kind, the malformation must of course be one of the most disgusting character." (*The Virginia Medical and Surgical Journal*, Vol. I., p. 268. Richmond : 1853.)

CASE CXXIII.—Professor Nagel relates the following case of imperforate anus, being the second, though of a different species, which he communicated to the "Society of Practical Medicine of Berlin."

"This second case of Dr. Nagel's occurred in a female child six months old. There was imperforate anus and an abnormal opening of the rectum at the entrance of the vagina, at the point of the lower commissure; a small tongue with its edge presented to the front completely closed this opening. A sound could not only be introduced with ease into the rectum, but could also be pushed against the perineum, and felt in front. The child although doing well, often suffered with colic and tenesmus, especially when fruit-stones, green gooseberries covered with their skin, or similar bodies were retained in the narrow anal aperture, or when impacted faeces were collected in the false passage behind the orifice. Constipation became more and more frequent, and the means hitherto employed to obtain liquid stools continued ineffectual. Nagel then decided upon an operation, which he performed by the process of Dieffenbach. By means of a hollow bent sound he easily formed the new anus; the mucous coating of the open intestine was joined to the skin. In the part of the rectum situated in front of this new anus, that is to say, in the canal which opened at the point of the posterior commissure of the vagina, Nagel introduced, eight days after, a red-hot iron, but without succeeding in obliterating it. A small quantity of faecal matter still continued to pass therefrom. Nagel feared to divide the cutaneous bridge which separated the artificial from the abnormal anus, considering the section of the circular fibres of the sphincter going to the vagina, and the incontinence of faecal matter, consequent upon the section of the canal, as a still greater inconvenience." (*Recherches Cliniques et Critiques sur L'Anus Artificiel. Par le Dr. Hermann Friedberg. Archives Générales de Médecine de Paris. Mai, 1857. p. 581.*)

CASE CXXIV.—The following case was communicated to J. C. Lettsom, M. D., by Mr. T. Mantell, of Dover, England, in a letter dated, Dover, May 25th, 1789 :

"Mrs. S—— was delivered of a female child in September, 1786. A few days after I was informed, that no proper evacuation of meconium had taken place, and that some small quantity of faeces had come away with the urine. On examination I found that a malformation was the cause, there not being any anus, or the least appearance of one. The infant, in other respects, was well formed; the vagina was perfect, and the water passed naturally by the urethra; the health of the child was bad; she appeared generally in great pain, was very costive, and, by violent forcings, a little quantity of hard faeces were driven out, in the form of small spiral strings, per vaginam.

"On acquainting the parents with the danger of the case, and proposing, as the only relief, to make an incision through to the intestine, and by that means endeavor to obtain a natural mode of evacuation, they requested me to do whatever I thought proper.

"As I had no direction by an impulse of the faeces against the skin, I chose the usual natural distance from the vagina, and made a deep but small incision, and, by passing a curved probe by the vagina, through the aperture into the rectum, I soon felt it, and was guided by that to proceed till the discharge of faeces came plentifully through the new aperture; the haemorrhage was not great, and the child was immediately relieved. To prevent constipation, and avoid pain by the expulsion of hard faeces, I gave laxative medicines, and my young patient felt little inconvenience, though there still continued some small discharge, as before, per vaginam. At the month's end it removed with its mother to town, and I saw no more of them till the spring of 1788, when I was informed by Mrs. S—— that the child had been very unhealthy, that it had suffered from many disorders, and was still troubled (particularly when costive) in voiding the faeces; and that the orifice I had formerly made had been so much closed as to render it necessary for a surgeon to dilate it, and yet it was now again very confined, which made such a constant use of purging medicines necessary, as to debilitate the constitution of the emaciated little subject.

"I had formerly been afraid of making the aperture large, lest, if I did, the powers of retention would be lost; but there now being a kind of stricture at the part, induced me to think the levatores and sphincter muscles were not deficient; and that no mischief would ensue, if I enlarged the orifice. Accordingly I made a large incision, and after this no further difficulties arose, the child became healthy, and I have the satisfaction of finding, near a year since the last operation,

that she continues perfectly well." (*Memoirs of the Medical Society of London*, Vol. III., Art. XIX., p. 389. London : 1792.)

CASE CXXV.—The late and lamented Dr. Mütter, formerly the able and distinguished Professor of Surgery in the Jefferson Medical College of Philadelphia, communicated to Dr. Meigs the following interesting case, in a letter dated October 4th, 1844 :

" In compliance with your request, I send a brief notice of the case of Imperforate Anus, of which you spoke the other day. About the last of April, 1844, I was requested by Dr. Jewell to visit, in consultation, the female infant (two weeks old) of one of his patients. On examination, the following condition of things was observed : The rectum terminated in a cul-de-sac, which extended to within three or four lines of the natural position of the orifice of the gut, which spot was occupied by dense cellular tissue and common integument, and no trace of the anal opening could be distinguished. We were told that the child was in the habit of passing its faeces through the *vagina*, and that each evacuation was attended with violent efforts, while the faecal matter was moulded into small threads. Separating the labia, an opening about the size of a small duck-shot was discovered just within the fourchette, and above it, a well-formed hymen. Through this opening a probe was readily passed into the rectum, and also through the hymen into the *vagina*, and both canals appeared perfectly normal, with the exception, of course, of the defect already described. The indication was obvious, and I at once proposed the following operation. With the view of establishing a proper channel for the faeces, and, at the same time, dispose the orifice between the rectum and *vagina* to contract and thus heal. Passing a small grooved director from the *vagina* into the rectum, I forced out the tissues forming its lower extremity, and then thrust a trocar down to the director and directly through the spot usually occupied by the natural orifice of the intestine. Withdrawing both instruments, I next, with a probe-pointed bistoury, enlarged the opening made by the trocar, and as soon as this was accomplished, the child passed an immense quantity of faecal matter, apparently with much relief. A sponge-tent was then introduced into the rectum, and the nurse instructed as to its objects and use.

" Being on the eve of sailing for Europe, I did not see the child again, but suggested the continued use of the sponge-tent, until the opening made had lost all disposition to contraction ; and, after this, if the orifice in the *vagina* did

not heal of its own accord, in consequence of the natural channel for the faeces being established, that it should be touched occasionally with the *argent nitrat*.

"I did not deem this a case in which the operation of Amussat was advisable, nor was it one that indicated *excision* of the tissues occupying the position of the anal orifice, nor could any operation upon the fistulous opening between the rectum and vagina be with propriety proposed. I preferred the *trocar* to a *sharp-pointed bistoury*, for performing the operation, for the simple reason that wounds made with the former instrument are much less prone to heal by the first intention than when the latter is employed; and as it was one object, of course, to prevent the close of the gut again, an event by no means uncommon, when a simple conical incision is made with a bistoury, I adopted the plan of operating described. I have not seen the child since my return, but understand from Dr. Jewell that there is some contraction of the orifice, and that, in all probability, it will be necessary again to divide its margins." (*A Treatise on the Diseases and Special Hygiene of Females. By Colombat De L'Isere. Translated from the French, by Charles D. Meigs, M.D. p. 116. Philadelphia: 1845.*)

CHAPTER VII.

THE SIXTH SPECIES OF MALFORMATION.

S E C T I O N I .

DESCRIPTION.

1. This species is recognized by the rectum terminating by an abnormal anus, either in the bladder, the urethra, the vagina, the uterus, or in a cloaca in the perinæum with the urethra and the vagina. There is generally neither a natural anus nor the sign of one present; yet sometimes, though rarely, a small contracted orifice indeed exists, at the natural situation, simulating the normal anus, which permits the introduction of the end of a small probe for a few lines. Mr. Cooke and Mr. Lucas have each seen and reported a case of this description. [*Vide Cases CXXXXVI—CXCVI.*]

2. This preternatural alliance of the digestive, the urinal and the generative systems, which is analogous to the normal formation of some animals, comprises that division of the congenital malformations of the anus and the rectum which Meckel very appropriately denominates—" *Cloaca Congenita*," and which is the " *Atresia Ani Vesicalis, Urethralis and Vaginalis*" of Papendorf.

3. The variety of this species of congenital vice in which the rectum opens into the bladder, is much more common in the male than in the opposite sex. There are indeed but few cases of the latter on record, and even those few are by no means well authenticated. The celebrated Morgagni reports a case from mere hearsay. [*Vide Case CXIX.*]

Aristotle gives the singular instance of a cow which presented not the slightest trace of an anus *in situ naturali*. He says, in this case, that “*the excrementitious parts of the food, being attenuated, were discharged through the bladder.*” (*De Generatione Animalium. Lib. IV., C. 4, in fin.*)

4. There are but few cases on record of the variety of this species of malformation, in which the rectum opens into the female urethra. Licetus and Delesalle report each a case. [*Vide Cases CLI—CLIII.*]]

5. Some of the instances in which the rectum communicates with the bladder in the male, are accompanied with an imperfect development of the penis, especially occlusion of the prepuce and urethra. M. Desgenettes records a case of this character. [*Vide Case CXXXII.*]

6. The rectum, in the majority of instances, instead of communicating directly with the bladder by simply an orifice, terminates obliquely in this viscus, between the insertion of the ureters, by a short conical canal, the vesical orifice of which being sometimes so small in diameter as scarcely to admit the end of the smallest sized probe. This narrow conical duct or rectal extremity, the base of which corresponds to the superior extremity of the rectum, or inferior extremity of the colon, and which is observed, in these cases, to connect the rectum and the bladder, is said by Dr. J. B. S. Jackson, of Boston, to resemble very much the *ductus arteriosus*. (*Records of the Boston Society for Medical Improvement, Vol. III., p. 158. Boston: 1859.*)

7. The rectum, when it terminates in the urethra, does so by a narrow conical canal, and quite small orifice, as it does in the bladder, and in the largest number of instances opens into the membranous portion of the urethra.

8. When the rectum terminates in the vagina the rectovaginal orifice is generally much larger than when it opens into the urinary passages. In some few instances, however, it terminates by a canal which becomes gradually narrowed

as it approaches the vagina, until it is quite small. The vaginal anus will usually be found situated low down in some part of the posterior or lateral parietes of the vaginal canal. [*Vide Plate IX, Figure 1.*]

Papendorf reports a case in which the rectum terminated at two points in the vagina. S. F. Ainsworth, M. D., of our own country, records a similar case. [*Vide Cases CLXXXVI—CCIII.*]

9. *Physical Signs—Diagnosis.* Should the abnormal opening of the rectum be vesical, its existence will be manifested by the thickness of the urine, and by its greenish appearance, which it acquires from being blended and tinged with the meconium previous to its expulsion from the bladder; and by its passing only at the time of urinating. These evidences are sufficient to show that the abnormal opening is entero-vesical, but they are not sufficient to indicate the direction, or the precise point of the termination of the rectum. This is often quite difficult, if not impossible to determine. When the urine is so much mixed with the meconium as to become semi-fluid, it is an evidence that the recto-vesical opening is large; when on the contrary it merely tinges the napkins, it is evident that the abnormal opening is small. Besides the passage of the meconium through the bladder and urethra, gas is also often expelled through the same medium.

Should the abnormal opening of the rectum be urethral, the meconium will often escape unmixed with the urine, either constantly in small quantities, or at intervals, or a small jet will always precede the passage of the urine. The meconium is sometimes also forced out in small cylindrical or spiral bodies. It is also difficult in these cases to determine at what point the rectal opening enters the urethra, whether at a short distance from the glans penis, or deeper down near the perineum.

10. *Prognosis.* The prognosis in those cases in which the rectum communicates with the bladder or the urethra of the

male is always very unfavorable, and unless such cases are relieved by prompt surgical measures, as a general rule, they soon end in death. In these instances the great danger and difficulty are at once obvious, when we take into consideration the smallness of the recto-vesical opening generally, and the length, narrowness and flexure of the male urethra. The extremely delicate and highly sensitive mucous lining too, of the bladder and the urethra, is not capable of sustaining for a length of time, without imminent danger of fatal cystitis, the immediate contact of the highly irritating sterco-rectal matters; and when the recto-vesical orifice is so small that nothing but the thinnest portions of the meconium can pass through it, the great danger then is from the accumulation and the retention of the excrementitious matters. Should the child even under these unfavorable circumstances continue to survive for several months, as soon as the faeces increase in quantity and acquire a certain degree of consistence, and accumulate, the life of the unfortunate little patient could no longer be sustained.

11. Much the same difficulties and dangers attend those cases in which the rectum terminates in the male urethra.

It was declared by M. Bertin, many years ago, that this particular malformation—that is, that in which the rectum opens either into the bladder or the urethra of the male—uniformly resulted in death. (*Mémoire de l'Académie des Sciences. Année 1771. p. 496.*) This opinion is still held by a number of surgeons of the present day, but it is not altogether tenable, for it will be seen that several cases have been reported in which life has been prolonged for months and even for years. M. Bravais mentions the case of a boy four years old. [Vide Case CLII.] Flajani reports an interesting case of a child four months old. [Vide Case CLIV.] M. Pouletier saw a boy three years old, who passed all his faeces through a preternatural opening of the rectum into the urethra. [Vide Case CLVIII.] Professor Gross, of Philadel-

phia, names two cases. One a very remarkable one. [*Vide Case CL.*]

12. The prognosis is somewhat more favorable when the rectum communicates with the bladder or the urethra of the female, in consequence of the shortness and the straightness of the urethra, and its great susceptibility of dilatation.

13. The prognosis is much more favorable when the rectum communicates with the vagina than when it opens into the urinary passages, in consequence of the greater amplitude of the recto-vaginal aperture generally in these cases, and the width and the straightness of the vaginal canal which thus affords an ample passage for the easy egress of the faecal dejections. The vaginal anus when large, as is usually the case, does not give rise to fatal results, does not compromise the life of the patient, neither does it in after life interfere with, nor prevent the functions of the vagina and the uterus. Several instances have been recorded of such patients having grown up to womanhood, and even of having been capable of becoming pregnant and of bearing children, without any very serious impediment to life or inconvenience, except the very disgusting nature of the infirmity itself. M. Fournier cites the case of a woman who became a mother, who had a congenital imperforate anus with an abnormal opening of the rectum in the vagina. [*Vide Case CXCIII.*] Ricord reports the singular case of a courtesan twenty-two years of age, who presented a congenital imperforation of the anus with an abnormal opening of the rectum in the vagina. A similar case to this in almost every respect, is related by Switzer. [*Vide Cases CCI—CCII.*] Morgagni records the case of a woman who from birth was afflicted with this infirmity, and who attained the extraordinary age of one hundred years. [*Vide Case CLXXVII.*]

14. Although we have shown that the unfortunate subjects of this affliction are generally in no immediate danger of death, yet the imperfection is one of a peculiarly delicate

character, and one that, should life be spared and prolonged, would only entail misery upon the unfortunate victim of it. The manner in which such a malformation would operate upon the mind, should the patient thus afflicted arrive at the age of reflection, can well be imagined, when we take into consideration the disgusting and the repulsive nature of the deformity itself.

15. All the cases in which the rectum opened into the vagina were until of late years considered hopelessly incurable, and even many surgeons still consider them so. They are the *opprobrium medicorum*. Surgery, however, must remedy this repulsive infirmity hereafter, and thus wipe out this disgrace. This she has already to a considerable extent accomplished.

16. In some of the cases under consideration, however, the mucous membrane of the vagina sooner or later becomes excoriated, indurated and fungated from the neglect of cleanliness, and abscesses often form in the adjacent cellular tissue. Such cases generally, are deplorably hopeless.

17. With regard to the prognosis of those extremely rare cases in which the rectum, together with the genito-urinary organs terminates in a cloaca in the perinæum, as observed in the monotremata, in birds, in reptiles and in many fishes, it is useless to conjecture. Such cases would seem, as a matter of course, to be beyond all hope of remedy. Only one such case in the human subject, as far as my reading extends, is recorded, and that one was observed by Saviard, and which I have presented entire. [*Vide Case CCIV.*]

Martin saw a malformation of this nature in a full-grown bitch. (*Annales de Société Natur. tome XII.*)

Hartmann observed a lusus of this character in a heifer. (*Miscellanea curiosa sive ephem. acad. natur. curiosor. decur. II. ann. VII. et VIII. p. 59.*)

18. The operation for the establishment of an artificial anus in the perinæum in all these cases in which there is an outlet

for the meconium, gas and faeces, even though it be small, is much more favorable than if no outlet whatever existed. The operation can therefore be always undertaken with stronger hopes of success in these instances.

S E C T I O N I I .

THE TREATMENT.

1. The treatment for the relief of that variety of this species of congenital malformation in which the rectum terminates in the bladder or in the urethra, is by no means void of difficulty and danger, and not well calculated to inspire the surgeon with confidence.

2. The indication in these cases is to establish an artificial anus in the perinæum, if the end of the rectum can be found, and thus open a new route for the free exit of the faecal matters which may all in course of time be diverted from the abnormal route, and in this way enable it to become gradually obliterated.

3. Should the rectum open either into the bladder, or into the urethra, and the child be threatened with speedy death, the surgeon should at once proceed to search for the end of the rectum, as advised in cases of imperforation of the anus and rectum, and if possible, form an artificial anus in the natural situation, capable of giving free egress to the accumulated meconium, excrement and gas. Afterwards the newly-formed passage should be maintained pervious in the manner already advised.

4. Although this operation may not obviate all the inconveniences of this infirmity, it will nevertheless at once relieve the urgent symptoms, and give ample time to put into requisition other measures, if necessary. The new passage may neither altogether prevent the faeces from following the other

route, yet it will certainly divert the largest portion of them, and in this way very materially improve the condition of the unfortunate little sufferer, and enable the abnormal passage and orifice finally to become obliterated when the faeces acquire more consistence and become less frequent.

5. M. Amussat advises that in case the rectum opens into the bladder or the urethra, that only the posterior wall of the rectum should be drawn down, because if the opening could not be closed, an extravasation of urine might ensue. He reports an interesting case upon which he operated, but unfortunately without success. In order to give his method of operating and his reflections on the subject, I have presented his case in full, translated from the French. [Vide Case CXLIV.]

I have also presented two highly encouraging cases, successfully operated on by two of our own talented countrymen, Drs. Buckingham and Gilman. These two cases reflect great honor upon those two surgeons. [Vide Cases CXLV—CXLVI.]

All other methods afforded by surgery for the relief of this defective variety of organization are imperfect, and their use often completely powerless.

6. M. Martin, Jr., a surgeon of Lyons in France, proposed in such cases the operation of incising the perinæum through the neck of the bladder, as in lithotomy, for the purpose of establishing a large and common orifice for the free egress of both the urine and the faeces which might pass into the bladder and become mixed there. The orifice he expected to be kept open by a canula constantly worn. (*Dictionnaire des Sciences Médicales. tome XXIV. p. 127.*)

This proceeding of M. Martin should, in my opinion, never be adopted. If it is not as dangerous, it is at least more revolting than the infirmity itself. The greatest objection, however, to the operation is, that in the largest number of cases it is impossible for it to succeed, indeed it has not even

the advantage of prolonging the life of the little patient for one hour, for it leaves the chief difficulty untouched, which is neither in the bladder nor in the urethra, but in the narrow conical rectal canal and orifice beyond them. I have already shown that the rectum in the majority of instances, for a greater or less distance before entering either into the bladder or the urethra, becomes quite small and narrowed, often to such an extent as scarcely to admit the end of the most slender probe. This canal in its congenital state of constriction, together with its recto-vesical or recto-urethral opening, would not perhaps be touched by the operation. Even should the opening be urethral and be divided in the passing of the knife into the bladder, yet the difficulty beyond would still remain untouched.

M. Cavenne performed this operation, but was so unfortunate as to lose his patient in the course of several hours afterwards. As his case is interesting, I have presented it in full, translated from the French. [*Vide Case CXXXVIII.*]

It is not to be understood, however, that this operation is never successful, for in cases in which the rectum communicates directly with the bladder or the urethra by a large orifice, it might succeed.

As I observed before, this operation should be repudiated, for besides its other numerous inconveniences, it would also add those of rendering the patient impotent, and leaving him with a stercoreaceous and urinary fistula.

7. When the rectum opens into the vagina the indication is the same, as in the other cases—that is, the artificial anus should be established in the natural situation, by opening a new route from the end of the rectum, and cutting off the communication with the vagina, thereby placing these two passages in a condition capable of carrying on their respective functions, independently of each other, as they should do in a normal state of the parts.

There are two very distinct methods of operating for the re-

lief of this peculiar deformity, with very ingenious modifications. One of these proposes the division, and the other the preservation of the perinæum and septum. Both methods find advocates in eminent surgeons.

8. M. Vicq d'Azyr, as I have shown in the sixth chapter, has recommended the division of the posterior wall of the vagina, below the opening, together with as much of the subjacent tissues as would admit of the introduction of a canula. This method has been improved by Martin, who advises that after having incised the entire septum from above downwards, and from before backwards, as recommended by Vicq d'Azyr, and after having placed a canula in the wound to form a continuation of the rectum, that the flaps of the vagina should be united in front of the canula, by points of suture. M. Velpeau is, however, of opinion that this last stage of the operation, which is the most difficult, is unnecessary—that if the tube is properly adjusted, the reunion of the divided tissues in front will be effected without the points of suture. He advises that an instrument curved backwards in the form of a blunt hook, should be introduced through the recto-vaginal orifice, into the cul-de-sac of the rectum, and its extremity rendered prominent in the perinæum, that the parts covering the extremity should be divided, and that a tube should be introduced into the opening thus formed. (*Nouveaux Éléments de Médecine Opératoire. tome III. p. 979. Paris: 1832.*)

By this method recommended by M. Velpeau, the division of the recto-vaginal septum would be avoided, which would make it decidedly preferable; but it would not be practicable in those cases in which the rectum opened directly into the vagina without terminating in the form of a cul-de-sac.

9. Our own able and distinguished fellow-countryman, J. Rhea Barton, M. D., of the city of Philadelphia, was, however, the first surgeon who, so far as my knowledge extends, proposed and executed a new method of operating in such

cases. This operation, peculiarly his own, he successfully executed in 1823, upon a female child a few months old. In order to give a complete exposition of his operation, I have presented a full report of his case. [*Vide Case CXCVII.*]

Dr. Barton's operation in a similar case was successfully executed within a short period subsequently, by the late able and highly esteemed Dr. Parrish, of the same city. I have presented the case of Dr. Parrish in full, as reported by Dr. Satchell. [*Vide Case CXCVIII.*]

10. Professor Dieffenbach has proposed two methods of operating in these cases, one of which differs but little from that of Dr. Barton. (*Operative Chirurgie. B. I. S. 676. Leipzig: 1845.*) He successfully executed one of his methods of operating upon a female child three months old. I have presented this case entire in order to explain fully his ingenious method. [*Vide Case CXCIX.*]

11. Should it be deemed advisable not to remedy the deformity at once, by the establishment of an artificial anus, on account of the feeble condition of the patient, or from some other cause; the recto-vaginal orifice not being of sufficient size, might, for the time being, be dilated by proper bougies, if not situated too far back. In the majority of instances, however, the recto-vaginal opening is sufficiently ample for the easy evacuation of the faeces, and should the circular fibres of the vaginal orifice of the rectum exercise to some extent the functions of a sphincter muscle, as they sometimes do in these cases, the surgeon could still with greater safety and propriety postpone all active measures until the patient had attained a more mature age, or until the cause which contra-indicated the operation, in the first instance, was removed.

SECTION III.

CASES AND REMARKS.

Many of the following cases, reported by the older surgeons and authors, I have presented as briefly as possible, inasmuch as they are very similar in character, and as no treatment for their relief had either been proposed or adopted.

The very careless and indefinite manner in which some of the following cases are described and reported by their authors, makes it quite difficult sometimes to determine positively whether the rectum terminated in the bladder, or the urethra.

(1.) *Cases in which the Rectum Terminated in the Bladder.*

CASE CXXVI.—Holtzach relates the case of a male child in whom the anus was imperforate and the rectum opened into the bladder by an abnormal orifice. (Schenckii. *Observationum Medicorum, novarum, admirabilium et monstrosarum. Lib. III. Sect. I. Obs. CCXXVII. p. 387. Francf. 1609. Folia.*)

CASE CXXVII.—A description of the case of a new-born male child is given by Osiander, in whom an imperforate anus existed, and the faeces were passed by the urethra. The child died. At the autopsy it was found that the rectum communicated with the bladder by a short canal the size of a goose-quill. (*Denkwürdigkeiten. Band. II. S. 470.*)

CASE CXXVIII.—Murray saw a male child who presented an imperforate anus, and in whom the rectum communicated with the fundus of the bladder. The child lived four months, and passed faeces and gas by the urethra. The faecal matter could not be passed through this small channel in sufficient quantity, which finally gave rise to inflammation and mortifi-

cation, and resulted in death. (*Dissertatio Atresia Ani Vesicalis, singulari observatione illustrata. Upsal: 1794.*)

CASE CXXIX.—Morgagni relates the case of a girl who had been seen at Bologne, who had an imperforate anus with an abnormal opening of the rectum into the bladder, as all the faeces passed by the urethra completely mixed with the urine.

No operation is said to have been performed in this case. (*Loc. cit. Epist. XXXII. Art. 4.*)

CASE CXXX.—Vollgnad saw a new-born male infant presenting an imperforation of the anus, in whom the faeces were passed by the urethra, both in drops and in large quantities. The child only lived a few days, no operation having been performed.

At the autopsy it was discovered that a communication between the rectum and the bladder existed. (*Miscellanea natur. curiosa. decur. I. ann. I. Obs. 2.*)

CASE CXXXI.—Van Sanden mentions the case of an infant of the male sex in whom the anus was imperforate and the rectum communicated with the bladder by a narrow canal the length of the thumb. (*Miscellanea natur. curiosa. decur. III. ann. IX. Obs. 194.*)

CASE CXXXII.—M. Desgenettes reports the case of a male child in whom the anus was imperforate and the rectum terminated in the bladder. In this case, in addition to the malformation already named, there existed imperforation of the prepuce and occlusion of the mouth. (*Gazette Salutaire.*)

CASE CXXXIII.—The following case is related by M. Bertin, and translated from his memoir in the Academy of Sciences by Mr. Thomas Copeland, who published it in his own work. (*Observations on the Principal Diseases of the Rectum, p. 170. Second Edition. London: 1814.*)

“In the month of April, 1769, an infant, five days old, was brought to me from the parish of Sens, in the bishoprick of Rennes, who evacuated the meconium by the penis; and having no anus, the rectum evidently terminated in the bladder. I saw the importance of the complaint, and the danger of the infant, who had been vomiting three or four days, and the abdomen was tense. I first desired the parents to call in M. Thonin, a neighboring surgeon: when he arrived, I pro-

posed to make an incision at the place where the anus should have been, which was farther marked out by a bluish spot. We hoped to open the natural passage for the faeces, and give them a more free exit than through the bladder; and that either the opening in the bladder would close, or that the child would void his faeces mixed with some urine by the new anus.

"The abdomen being very hard, and the child vomiting the milk, and even its excrements, M. Thouin made the incision immediately, in the presence of M. Guiot, a surgeon in the neighborhood, who told us, he had performed the operation twice with success.

"But the two cases related by M. Guiot, were different from the present one, as there was no communication with the bladder; and another diversity from the cases he described was, that in this case, the meconium did not follow the incision, nor could the rectum either be found with the instrument, or the finger, the best of instruments. We judged it necessary to plunge the trocar through the incision; it was passed deep, but without success; which was the more disconcerting, as we were as certain of the existence of the rectum, by the evacuation of the meconium through the bladder, as if we had seen it with our own eyes. A tent was introduced into the wound, to preserve the opening for further trials which might suggest themselves on reflection. We had done all that was advised by authors, in cases in which the rectum does not descend to the anus, and also as much as the debilitated state of the child would bear. The child was taken away at six in the evening, proposing to myself to make some farther attempts the following day, if the condition of the child would permit it.

"I requested M. Thouin to see him early in the morning. He told me on his return, that the child was so ill, that he did no more than examine it; but that the meconium had descended on the tent.

"The child died." (*Mémoire de l'Académie Royale des Sciences de Paris. Année 1771.*)

M. Bertin remarks in relation to such cases, that a free incision should be made into the bladder, in order the more effectually to evacuate the faeces, and reproaches himself for not having resorted to such an operation in the preceding case. From this it is evident that the operation of M. Martin, which I have already noticed, was proposed by M.

Bertin as early as 1769, consequently M. Martin could not have been the originator of it, as he claims to be.

I would also remark here, that the blne or livid spot which is often observed at the normal situation of the anus in imperforation, is not always a positive evidence of confined meconium there, or the presence of the end of the rectum, as is generally believed. Dr. Gay reports a similar case in this respect to that of M. Bertin. [*Vide Case CXLIX.*]

CASE CXXXIV.—Wreisberg mentions the case of a male infant in whom the anus was imperforate and the rectum opened into the posterior part of the bladder, by a small aperture. [*Vide Plate IX, Figure 2.*].... (*Dissertatio de Præternaturali et raro Intestini Recti cum lotii Vesica coaliitu, et independente Ani Defectu—Comment, Societat, Reg. Scientiar. Gottingens. Vol. I. p. 1. 1779. Also—Commentationum, Medici Physiologici Anatomici et Obstetrici Argumenti. p. 172. Tab. VII. Gottingens: 1800.*)

CASE CXXXV.—Casimir de Chonki relates an interesting case of a male child in whom the anns was imperforate, the rectum absent, and the colon, after descending with a considerable curve, passed down behind the bladder, between the ureters, and terminated in its fundns by a large orifice. In this remarkable case, there also existed bilobation of the bladder, an umbilical hernia formed by a portion of the small intestines, together with a preternatural anns, or rather a faecal fistula, situated in the umbilical region. The ureters were very much dilated, except immediately at their junction with the bladder, where they were of the normal size. [*Vide Plate IX, Figure 3.*].... (*Dissertatio. I. de vitio quodam primæ formationis inferiorem potissimum tubi intestinalis partem et vesicam urinariam spectante. c. tab. Berol: 1837. 4to.*)

CASE CXXXVI.—The following very curious, interesting and unique case was communicated to Mr. Costello, editor of the Cyclopædia of Practical Surgery, by Mr. Bennett Lucas.

“ A. B., a male infant five days old, presented in the situation of the anus, a red fleshy-looking tumor about the size of a pea, which concealed an opening only capable of admitting a small tube, about to the depth of from three to four inches. Nothing had ever been passed in this channel, the child dis-

charging both its urine and faeces through the urethra. Both testicles had descended, and a congenital hernia existed on either side. With these exceptions the infant was otherwise well formed, healthy and of the ordinary size. I proposed to Mr. Kenny, in company with whom I saw the case, to perform an operation, with a view to establish a connection between the rectum and anal aperture; but as no very great hope, much less decided success, could be held out from its performance, the parents objected to the operation being attempted, and the little patient died on the evening of the ninth day of its birth. Two days before the infant expired, its scrotum became extended, and evidently contained a fluid. An incision was proposed to be made into the tumor, but it would not be permitted.

"From the haste attending the removal of the parts, I lost sight of the termination of the ureters, as also the termination of the vasa deferentia. I have, however, since the accompanying sketch of the parts was taken, slit up the remaining portion of the undivided urethra, and with the greatest care examined its mucous surface, and also the mucous surface of the bladder, but I could not detect any openings besides those already mentioned.

"As the child passed urine through its urethra, there can be no doubt but that this secretion was received into the bladder; and as no trace of any opening, except the recto-vesical, the ano-vesical and the urethro-vesical, can be detected, the urine must have been conveyed, in the first instance, into the large intestine, and thence into the bladder by means of the recto-vesical opening.

"I am unable to say at what point each ureter entered the large intestine, having brought away only the length of the intestine shown in the engraving, which includes all the rectum, such as it is, and a portion of the sigmoid flexure of the colon; and so far as this much of the gut is concerned, the only opening it presents is the recto-vesical. The ureters probably opened into the corresponding ascending and descending portions of the colon. But this can be only conjecture.

"The course of the vasa deferentia was also destroyed in the hurry of removing the parts; but there is no opening in the urethra, bladder, or the portion of large intestine, to indicate that they terminated in any of these organs.

"The urethra does not present a trace of the veru montanum. I also looked most carefully for the prostate gland and vesiculae seminales, without success.

"The appearance revealed by the dissection of this, I

believe, unique condition of parts, was very different from what was anticipated. Although the infant passed both faeces and urine through its urethra, it was a reasonable inference that the anal orifice communicated with the rectum, in consequence of the depth which the probe passed; the extremity of the probe on being withdrawn, being sullied with faeces, and this being the natural outlet of the alimentary canal. The usual orifice, also, and the canal leading from it, being so uneven, as to offer a serious impediment to the passage of the faeces in this direction. Notwithstanding it was evident during life that a communication must have existed between the bladder and the rectum; yet under the supposition that the anal orifice communicated with the rectum, all hope of success from an operation which had for its object the restoration of the lower portion of the intestinal canal, was not shut out, particularly when we recollect the rapidity with which abnormal openings in children close, when once the cause which tends to keep them open, is removed.

"In this case, however, I doubt, if any operation, even were the state of the parts beforehand ascertained, would have been attended with a favorable termination." [Vide Plate X, Figure 1.] (*Cyclopaedia of Practical Surgery. Vol. 1. Article. Bladder. p. 472. London, 1841.*)

CASE CXXXVII.—The following interesting case of imperforate anus with the rectum terminating either in the bladder or in the urethra, is reported by Mr. Miller, of Methven. This case was alluded to in the fourth chapter of this work, when speaking of the difficulty of maintaining a perineal artificial anus, previous.

"In the month of January, 1821, Mr. Miller delivered a young woman of a male child. Thirty hours after birth it was discovered that the child had no anus, and there was no indication of the place which the anal orifice should have occupied. The meconium passed by the urethra. Dr. Miller made an incision in the perineum, at the normal situation of the anus, of an inch long and an inch deep; and then introduced a large trocar, such as is commonly used in abdominal paracentesis; and upon the second attempt, after having pushed the instrument to the *guard*, the end of the rectum was penetrated, which at once gave exit to its contents."

"What ordinarily occurs," says Dr. Miller, "presented itself here also. There was great difficulty in keeping the anus open, and before the child was eight months old, it was

necessary to make ten incisions with the bistoury. Hardly had the boy begun to walk than he showed a fondness for eating cinders, which lodging in the rectum, obliged frequent operations for his relief. In one of these the bladder was wounded, and from that time the urine passed in small quantity from the rectum, but the larger portion still followed the course of the urethra. Laxatives and frequent injections enabled the stools to be made with tolerable ease."

The child was four years old when one day the mother found difficulty in introducing the beak of the syringe into the rectum; she thought she felt a hard, resisting body. She did not mention this to Dr. Miller; but three years after, a complete obstruction of the rectum occurred, accompanied with the most severe pain. They then discovered the presence of a large calculus in the rectum. The anus was so much contracted that it would hardly admit a goose quill.—Dr. Miller enlarged it sufficiently to introduce his finger, and he found the concretion was large enough to fill the hollow of the sacrum. The hardness of this calculus made him think it only possible to extract it in fragments. For this reason he constructed a drill, by the aid of which he could easily make a hole five-eighths of an inch in diameter. To hold the stone during the drilling, he introduced forceps in separate parts, and afterwards united them when in proper position. The anus was then enlarged in the antero-posterior direction to a sufficient extent, and the drill was worked until the stone was completely traversed. Into this opening a strong pair of polypus forceps was placed, and forcibly separating the blades the stone was broken into several pieces, each of which was also in its turn, drilled, broken and extracted. The operation lasted two hours and three-quarters. All the fragments being removed, the patient was put to bed. At the end of ten days he was able to rise and the anus had returned to its normal dimensions. The calculus was of the size of a very large turkey egg, quite hard, and very rough on the outside, and seemed formed of earthy matter.

Dr. Miller, having left the country for several years, lost sight of his patient, but hearing mention made of two cases of malformation of the anus, (one of which presented an anus opening into the bladder,) and upon which no operation was performed, being considered useless, he caused inquiry to be made to learn what had become of his patient. He was still alive, and Dr. Miller had an interview with him. He was in good health, and had never complained since the stone was removed, and is to day a strong and active farmer. At the age of twelve years, a second soft stone, the size of a chesnut,

passed without pain, but he had lost it. The functions of the bladder and the rectum were performed with perfect regularity." (*Edinburgh Medical and Surgical Journal. No. XCIVIII*, p. 62. 1829. *Also—Gazette des Hopitaux de Paris. No. C VI*, 10 Septembre, 1857.)

CASE CXXXVIII.—M. Cavenne, a physician of Laon (Aisne,) reports the following case of a male child who presented an imperforation of the anus and rectum, the latter terminating in the bladder by means of an abnormal canal and orifice.

"Celine Hainou, 38 years of age, wife of Pierre Cordevan, of the Commune of Brie, Department of C'Aisne, gave birth, on the 22nd January, 1824, at eleven o'clock, A. M. to a male child, seemingly healthy and well formed; for up to the 24th January, the second day after its birth, the parents had not discovered the infirmity with which it was afflicted. The child sucked well, and hitherto the urine passed, was unmixed with any foreign matter.

"Soon the abdomen became swollen, the child cried out, and appeared to suffer much; it also vomited meconium several times. The health officer of the place being consulted, prescribed a bath into which the child was placed for some minutes. The same symptoms continued, and as it had had no evacuation of the bowels, it was resolved to administer an enema; but they were not a little surprised to discover no trace of an opening at the normal place of the anus, nor even in its vicinity. On leaving the bath a little urine was passed, mixed for the first time with meconium. The passage of this foreign substance through the urethra caused swelling of the entire penis, which was temporarily remedied by emollient applications.

"I was called in on the morning of the 25th to examine the child and employ suitable means to remedy the malformation. The abdomen was distended, slightly tinged with green and sensitive to pressure. In the perineum I discovered only a line of depression extending from the end of the coccyx to the point where the skin of the scrotum unites with that of the penis, so that the scrotum instead of affording a single envelope to the testicles, formed two very distinct ones; the prepucce adhired also to the lower half of the gland. I caused the child to lie on its abdomen so that the pressure caused by this position might render the place ordinarily occupied by the extremity of the intestine more prominent, if it was not too far distant. I discovered no sign of its existence. During this manœuvre the child vomited meconium,

which also passed by the penis mingled with the urine, tinging the diapers a deep green since its exit from the bath.

" Presuming then that there was a communication between the intestine and the bladder, forced to act promptly, since the abdomen was rapidly swelling, while the meconium was passed by vomiting, it became necessary to choose a method and to put it into execution. To establish an artificial anus after the advice of M. Dumas would only partially remedy the malformation, at least on the supposition of the obliteration of that portion of intestine below the new anus, for want of which a part of the meconium must continue to pass into the bladder. I therefore gave the preference to the process recommended by M. Martin, Junior, a surgeon at Lyons.

" To perform the operation the little patient was placed on the border of a sufficiently elevated table, furnished with a cushion, and a cloth folded several times; a very small staff was introduced into the bladder by the urethra; the thighs were flexed upon the abdomen a little apart, the scrotum was raised with the left hand, and the perinæum rendered prominent by pressure exerted by the assistant to whom the staff was confided. A longitudinal incision in the perinæum, about an inch long, allowed me to pass the point of a long straight bistoury over the finger nail of the fore-finger of the left hand, into the groove of the staff which I raised towards the pubis, whose direction I followed in order to penetrate the bladder and incise its neck by the withdrawal of my bistoury.

Instead of the great quantity of meconium which I expected to see gush out, there only flowed a little urine mixed with blood. I introduced a female catheter by the opening just made, to make sure of having penetrated the bladder; it penetrated in fact to a greater depth than the blade of my bistoury had done, and passed around the cavity of the organ very freely, always arrested by the resistance of its walls. A silver canula, two inches and a half in length, surrounded with fine linen, well greased, was introduced into the opening for the purpose of dilatation and to arrest the hemorrhage; nothing passed the canula and the child died at six o'clock, P. M., on the 25th of January.

" Upon opening the abdomen there flowed out several ounces of serous fluid of a greenish color, apparently caused by the great quantity of meconium which distended the large intestines, as well as the greater part of the small intestines.

" The end of the colon cut longitudinally brought to view the cavity of the rectum very short, terminating in a cul-de-sac, from which there issued a narrow canal, about a half inch

long communicating with the bladder, behind the neck of that organ by an opening of very small diameter.

Through an opening made in the anterior part of the wall of the bladder which contained no fluid, was seen the incision of the neck, about three lines in length, and at the right of this, the vesical opening of the canal communicating between the intestine and the bladder, surrounded with a slight border which seemed to perform the office of a sphincter. I could only penetrate the duct from the cavity of the intestine to that of the bladder, by the aid of a blunt stylet a little larger than those used for sounding the lachrymal ducts. (*Archives Générales de Médecine de Paris. Année 1824. tome V. p. 63.*)

CASE CXXXIX.—The late Dr. John H. Steel, of the Saratoga Springs, New York, reported the following case.

"On the 13th of April, 1833, Mrs. C., a strong, healthy woman, was delivered of her tenth child, a fine, fat boy, who weighed between eight and nine pounds. He was dressed, and placed in bed with his mother, and nothing unusual was observed about him until the succeeding day, when he became restless and exceedingly fretful, and although he was nursed freely, his attention to the breast was frequently interrupted by fretful starts, accompanied at times by piercing shrieks and noisy crying. His diapers were observed to be frequently wet, and when removed were found to contain portions of feculent matter, of a natural appearance, and in about the usual quantity; his restlessness however continued to increase, and his crying became more constant and alarming.

"On the second or third day after birth, it was discovered by the nurse that the usual aperture for the evacuation of the contents of the bowels was entirely wanting, and that the feculent matter which had appeared, was voided through the urethra along with the urine. It was at this period that I first became acquainted with the case.

"On removing the diaper, about a spoonful of faeces and urine, of the consistence of thick gruel was voided at once, apparently with some effort, from the extremity of the urethra; the glans penis was considerably inflamed, and the child cried as if in great agony. Several other and stronger efforts were evidently made, when smaller portions of faeces of the same appearance and consistence as the first were excluded and the little sufferer then became more quiet.

"The parts behind the scrotum were perfectly natural in every respect, except the want of an anus, of which there was not the slightest vestige, the spot where it should have

been was smooth, and of a uniform color with the adjacent parts, the sphincter muscle was evidently wanting, and there was nothing to indicate an accumulation of faeces in the vicinity.

"The examination resulted in the conviction that the intestine did not extend to the perineum, but probably terminated in the bladder or some of its appendages; under this view of the case any attempt to form an artificial anus would have been useless, if not absolutely injurious. The parents, therefore, were instructed to keep the parts clean, to use a little sweet oil about the glans penis, and by all means to keep the bowels loose should any tendency to constipation occur.

"For the first three or four weeks the child continued fretful, and evidently to decline in vigor and growth; but from that period to a short time before its decease it suffered but little apparently, nor did its growth or strength seem to be at all impeded. The only peculiarity observable was the appearance of two large front teeth in the upper maxilla, which at the age of seven months were as large and fully grown as those of an adult; they, however, in the course of two or three months became loose, and finally dropped out. In the latter part of the month of March ensuing its birth its bowels became obstinately obstructed, the scrotum enlarged, and became extremely tender, and on the 30th of the same month its sufferings were terminated in death.

"At the autopsy, on removing the integuments from around the body of the penis, which were considerably swollen, two *apple seeds* of a large size, which had passed through the intestines, together with a portion of the capsule or hull which surrounds the seed in the core of the fruit were found lodged in the urethra about three-fourths of an inch from its termination; they were so situated as to completely obstruct the passage, and a small opening had been formed immediately behind them in the urethra through which some of the contents of the bladder had been infused into the cellular tissue, and extended to the scrotum. Inflammation and consequent gangrene was the result, and to this may undoubtedly be imputed the immediate cause of the child's death.

"The contents of the abdomen appeared perfectly natural, excepting that portion of the intestinal canal termed the *colon sinistrum* or descending colon, which was found to be entirely destitute of the *sigmoid flexure*; the gut passed along the left lumbar, and through the iliac regions in nearly a straight line to the neck of the bladder, into which, after an abrupt but imperfect curve, and being suddenly contracted in its

dimensions, it was inserted just behind the base of the *prostate gland*. The aperture which united the gut and bladder of urine into one common receptacle for their respective contents, was of sufficient capacity to admit a large sized goose-quill; through this aperture the urine found a ready egress into the intestine, where becoming united with the contents of that receptacle it was forced back to the bladder, and finally expelled through the urethra. About half a pint of urine and faeces of the consistency of that which was usually voided, was found to occupy the cavity of these two organs, and was readily excluded by means of a slight pressure on the parts. The space between the perinæum and the termination of the intestine was occupied by a soft, fatty substance, but there was not the slightest vestige of a gut." [Vide Plate X, Figure 2.]..... (*American Journal of the Medical Sciences. No. XXX. p. 404, Philadelphia, February, 1835.*)

CASE CXL.—M. Cruvielhier gives a very interesting instance of a fully matured male foetus, in which was presented an imperforation of the anus, with the rectum terminating in the bladder by a very small canal, at the posterior extremity of the vesical uvula. In this case, besides the malformation already mentioned, there existed a very remarkable deformity of the pelvis with congenital luxation of the femur, club-foot, &c. The perinæum was enormous in its antero-posterior diameter. There was not the slightest trace of an annis and no median raphié, but all was smooth in the ano-perinæal region. At the extremity of the coccyx a small depression could be observed, resulting from adhesion of the skin to that point. The genitals were well formed but were pressed to the front, and the scrotum was destitute of testicles. [Vide Plate XI, Figures 1, 2, 3.] (*Anatomie Pathologique du Corps Humain. Tome I. Livraison, II. Planche, II. Figs. 1, 5, 6. Bruxelles: 1833, 1834.*)

CASE CXLI.—Baillie saw a child in which at birth, the rectum opened into the bladder. The deformity was of such a character, he observes, as neither to admit of a remedy by art, nor to allow of life being continued. (*Morbid Anatomy, p. 165. London: 1833; by Wardrop.*)

CASE CXLII.—Dr. Dorsey remarks, that a very interesting case of imperforate anus in a male child, is related by his friend Dr. J. A. Smith, in the second volume of the "*New York Medical and Philosophical Journal.*" In this case the rectum terminated in the urethra, through which

canal its contents were evaenated. An unsuccessful operation was performed for the relief of the patient; the wound healed, but within a month the child expired. No dissection was permitted, consequently the mode and place of communication between the rectum and the urethra or bladder remained unknown. (*Elements of Surgery. Vol. II. Chap. LXIV. p. 469, 3rd Edition, Philadelphia: 1823.*)

CASE CXLIII.—The following case was communicated to the “*Boston Medical and Surgical Journal,*” by Dr. L. W. Houghton, of Waterford, Maine, in a letter dated July 8th, 1847.

“I was called on the 20th of last month to see an infant child, who, the messenger said, ‘seemed to have no passage from the bowels.’ The child was some eight or ten hours old, the mother having been attended during her confinement by a midwife, there being no physician within some eight miles of her residence. With the following exceptions the appearances of the child were healthful. The lower extremities were not well developed, and the cuticle was wanting in considerably large portions, while in other parts it appeared dry and horny. The spine also terminated from two to four inches higher up than natural; the sacral portion of it, if no more, being wanting. The *raphé* along the perineum extended only a short distance back of the scrotum, and there was no appearance of the anus. I came to the conclusion, that from the external appearance of the child, there was malformation of the pelvic viscera, or that some portions were wanting, and did not therefore attempt the operation for artificial anus. A few hours after I left, the child commenced voiding meconium per urethra, and continued to do so till death, which occurred forty-eight hours from its birth.

“*Post-mortem Examination.*—I found, on examination, a termination of the rectum into the neck of the bladder, by a very small opening, barely sufficient to admit an ordinary-sized probe. The rectum, besides the opening already described, terminated against the lower lumbar vertebra.”—(*Boston Medical and Surgical Journal. Vol. XXXVI, p. 520. Boston: 1847.*)

CASE CXLIV.—M. Amussat reports the following case of imperforation of the anus and rectum in a new-born infant of the male sex, in which the rectum opened into the bladder:

“On the seventh of May, 1842, MM. les docteurs Miquel and Devilliers sent a child to me, about forty-eight hours old.

We were informed there was no anus, that the child passed meconium with the urine, and that on account of this circumstance, the diapers being stained yellow, they had only just discovered the malformation.

"I examined the child in the presence of MM. L. Boyer, Filhos, Grabowski, Kontsoceski, Silvestre Du Perron and Le Vaillant.

"No anal opening existed; the raphé, strongly marked, extended beyond the coccyx, and the perinæal region was everywhere uniformly developed. The abdomen was much distended, and the lower part filled with serosity. The urine was of a yellowish hue, thick, and colored the linen. Pressing firmly on the abdomen with the fingers placed on the perinæum, it was impossible to discover any kind of fluctuation. Although the conviction existed that the rectum terminated in the bladder, there was reason to suppose that the end of the intestine descended to the lower part of the pelvis, either directly opening into the fundus of the bladder, or by dilatation approaching the floor of the perinæum and coccyx. Reasoning from this supposition, we should operate from below, and endeavor to establish the anus in the region of the coccyx, before attempting to make an artificial opening in the left lumbar region by incising the descending colon.

"An incision was first made in the median raphé, of sufficient depth, extending about a half an inch from before backward. No fluid escaped. Searching under the coccyx nothing was found. To aid the exploration, we amputated the cartilaginous extremity of the coccyx and explored with the index finger introduced into the wound. In the upper part of the pelvis, a protuberance was seen which seemed to us to be the end of the large intestine. We now hoped to reach the end of all our efforts; but this protuberance having been incised, furnished no liquid, and yet a sort of mucous membrane was seen, and a stilette could be inserted into its cavity. It was really a cavity, as it seemed, but a cavity containing neither gas nor fluid. Finally, after many useless endeavors to recognize the fluctuation which should be sensible, if the intestine had been in the upper portion of the wound, as we had hoped at first, the operation was abandoned, by reason especially of the feebleness of the child, and from the same cause we deemed it advisable to operate in the left lumbar region by opening the descending colon.

"The chances of life in this child were very small, even before the operation; for there was an infiltration of the lower part of the abdomen, an infiltration announcing already existing disorders of that region, and perhaps of the respira-

tion. Its condition became still more disturbed after so long and fruitless an operation. A gleam of hope yet remained from the idea that the end of the intestine might become engaged in the wound by the cries and efforts of the child, and that then we might open it and fix it to the edges of the wound. But we were disappointed even in this hope, and the child died thirty-six hours afterwards without our perceiving through the opening which we had kept open with a tent of charpie, any species of fluctuation indicating that the rectum terminated in the pelvis.

"At the autopsy, performed in the presence of MM. Piett, Filhos, L. Boyer and Le Vaillant, the following was observed.

"The large intestine was distended by meconium and gas. It preserved its ordinary relations and it was demonstrated that the left lumbar colon was fixed to the posterior abdominal wall and that the peritonæum did not come at least one third of its extent. The rectum, which was very much distended, formed a voluminous sac, terminated by a conical extremity opening into the bladder between the two ureters by a narrow strait half the size of the opening of the neck of the bladder.

"By the perineal incision which was made in order to reach the end of the large intestine, we arrived within a very short distance of the rectum. Had we persisted in this effort, it is probable that we should have reached it." (*Troisième Mémoire sur la Possibilité d'établir une ouverture artificielle sur le Colon lombaire gauche sans ouvrir le Péritoine, chez les Enfants imperforés. Paris: Année 1842. Also L'Examinateur Medical de Paris, Année 1843, tome, III. p. 215.*) .

CASE CXLV.—C. E. Buckingham, M.D., of Boston, Mass., communicated the following case to the "*Boston Medical and Surgical Journal* :"

"William, the son of William Lund, was born on the 6th of December, 1851, and on the morning of the following day the nurse reported that there was an obstructed anus. On examination, the cleft of the nates was found sufficiently marked, but there was no evidence of an anus, either by protrusion or discoloration. During the night there had been occasionally bilious vomiting, and latterly straining, as if to evacuate the bowels. There had been no discharge of urine. Had taken no food of consequence, but had tried to nurse. The countenance looked badly, and there was lividity about

the mouth and eyes. Was somewhat stupid; did not cry, but was constantly moaning.

"Operation thirty-two and a half hours after birth, with the assistance of Dr. Henry Osgood Stone. The child was held upon the lap of the nurse, its nates resting over the right knee, and the knees raised as for lithotomy. I made an incision in the centre of the cleft of the nates from the sacrum to the coccyx, and crossed this with another, at right angles, from the tuberosity of one ischium to the other. The dissection was carried on with a sharp-pointed, straight bistoury, backward and a little to the left, for two inches. No evidence of the neighborhood of the rectum being obtained with the finger, I passed a hydrocele trocar into the wound, in the same direction, a half inch further. On withdrawing it, meconium was found upon it. The wound was then enlarged with the knife, and a female catheter was introduced, through which an enema of warm water was administered. There was immediately a fair discharge of meconium, and a slight discharge of urine.

"The child cried but little, and the whole loss of blood was not much more than two drachms. A few spoonfuls of milk and water were given, and it was dressed in the usual manner, no application being made to the wound. Half an hour later, the moaning had ceased, the child looked brighter, and there was a profuse dejection.

"5, P.M.—Has had two full evacuations, but has not vomited nor passed urine. At 5, P.M., on the 8th, I introduced a sponge tent two and a half inches, with some little difficulty. During the attempt at introduction, the efforts of the child to evacuate the bowels produced an audible passage of air through the penis, which was rendered visible by the spattering of urine, and perceptible to the hand, which was laid above the pubes.

"Dec. 9th.—Removed the tent, immediately after which, he passed a large amount of almost colorless urine in a jerking stream. No passage, either fluid or solid, by the anus at the time.

"I have the regular reports of each visit, but select only such as are of particular consequence.

"Dec. 14th.—Tried unsuccessfully to introduce a bougie of more than one-fourth of an inch in diameter. Umbilical cord has not yet separated.

"16th.—Introduced a female catheter with difficulty.

"25th.—Free dejection. Passed a bougie of ebony, seven-sixteenths of an inch in diameter.

"27th.—In pain all night. Tumor in left side just over

short ribs, size of a small walnut. Nurse says, she discovered it last night.

" 29th.—Tumor increasing in size. Passed bougie of 25th again with ease. Some bloody pus followed it.

" Jan. 1st, 1852.—Opened tumor, which discharged an ounce of pus.

" 7th.—For several days the left side of the scrotum has been swelling.

" 13th.—Opened small abscess in front of scrotum. Child weighs nine and a half pounds, an increase of two and a half pounds since birth.

" 22d.—Bougie has not been introduced since the 16th. Has two dejections daily, and sometimes more. The scrotal abscess is well; there has been a slight gathering again on the left side, which broke yesterday, and does not discharge to-day.

" Feb. 13th.—No bougie since Jan. 16th. Three dejections. Weighs eleven and a half pounds.

" March 11th.—Gains daily. Nurses well. Bowels open freely every day without medicine. No bougies since Jan. 16th. Has gained another pound.

" Soon after this last report, the child left town for Gardiner, Maine, and returned on the 28th of May. Saw it that afternoon. Looks well and is fat and hearty. About the 1st of May, discharged urine and faeces mixed, by the urethra; but has not since. For several days last week, had diarrhoea, which stopped on the 21st. No instrument has been passed into the anus, which is red and shining about its edges, and bled a little on separating the nates.

" Aug. 5th.—Has six teeth. For several weeks has had diarrhoea, and faecal matter passes by the urethra, as much as by the anus.

" In the fall the family removed to Malden.

" Oct. 21st, 1857.—Saw Mrs. Lund, the mother, at 36 Leverett Street. She informs me that her boy upon whom I operated is still living, and is generally in good health. He occasionally has pain in the pubic region, but she considers him well. There is, however, at times, difficult micturition. The family still reside at Malden." (*Boston Medical and Surgical Journal*. Vol. L VII., p. 334. *Boston* : 1857.)

CASE CXLVI.—The following case was communicated to the "*Boston Medical and Surgical Journal*," by Noah Gilman, M. D., in a letter dated, South Deerfield, August 23rd, 1853.

" While residing in Frankfort, Maine, about three years

since, I attended Mrs. W. in her first confinement. She was delivered of a large, apparently healthy, and well-developed male child, in which I could perceive no defect whatever. Twenty-four hours afterwards, was notified by the nurse that the child had passed neither urine nor faeces. On examination, it proved to be a case of imperforate anus, of a very unusual character. The rectum had terminated in a *cul de sac*, high up in the pelvis, and communicating with the bladder. There was not the slightest rudiment of an outlet to the gut, nor any mark to indicate where it should be. No distension of the integuments denoted a pressure of the faeces within. The genital organs were somewhat deformed. The testicles well developed, but there was a mere apology for a penis, with the urethra terminating near its root, just above the scrotum.

" Having introduced a bent silver probe into the bladder, its removal was followed by a jet of urine and thin faecal matter. The probe was also covered with meconium. In deciding upon an operation, I reasoned thus:—As it is uncertain how far it will be necessary to dissect in order to reach the rectum, the danger of wounding arteries beyond the reach of the ligature will be very great. Should it be necessary to carry the dissection any great distance, the patient will probably die in my hands. And then, should he survive the operation, the fact of the communication between the gut and the urinary organs, would render the ultimate success of the operation quite uncertain, to say nothing of the difficulty of preserving a proper opening. On the other hand, the child must die.

" With the advice and assistance of Drs. Edmund and Charles Abbott, I made an incision through the skin and cellular membrane, from the extremity of the coccyx, along the perinaeum, about two and a half inches. No muscular fibres were divided. Dissected carefully up the natural course of the bowel about one and a half inches, where the rectum presented itself, terminating in a *cul de sac* and enormously distended with faeces. This was freely laid open, and a copious evacuation ensued, giving entire relief to the little sufferer. No blood-vessel requiring ligature was wounded. The divided parts were kept from adhering together, at first by tents well-oiled, and afterwards by a tube with a button on the end, which was made to order. Much trouble was at first experienced in retaining the tube, as its introduction would produce violent straining and evacuation, but the parts, after a while, became accustomed to the irritation. In a few weeks the parts were entirely healed, and an artificial anus

established, to all appearance as good as natural. Fortunately, after the operation, no faeces ever appeared in the urine, nor was there any reason to believe that the urine ever passed into the rectum.

"The child, at the age of one year, was remarkably large and vigorous. The family removed from the place, and I have not heard from the child since. As the sphincter muscle is wanting, he must necessarily experience some inconvenience on that account. It is a circumstance worthy of remark, that this patient, scarcely twenty-four hours old, never cried during the operation, thus putting to shame those robust persons, of mature age, who cannot bear the extraction of a tooth without the use of ether." (*Boston Medical and Surgical Journal.* Vol. *XLIX.* p. 115. *Boston:* 1853.)

CASES CXLVII-CXLVIII.—M. Velpeau says, that he met in his practice, with two male children, in whom the anus was imperforate and the rectum opened into the bladder. (*Mott, Op. cit.* p. 1086.)

CASE CXLIX.—G. H. Gay, M. D., of Boston, Mass., on the 23d of November, 1857, reported the following case to the "Boston Society for Medical Improvement."

"The child was first seen, says Dr. Gay, on the 14th November, 1857, about sixty hours after birth. By the mother's account, it had passed nothing from its bowels, and only a slight quantity of urine from the penis, and was in nearly constant distress, with occasional nausea and the vomiting of a greenish fluid. It was also restless and crying most of the time.

"On examination, there was the brownish discoloration and puckering of the skin where the anus ought to be, but no opening could be found. On pressure with the finger, active contraction and retraction of the skin followed, indicating a strong muscular power. A moderately firm, bluish membrane, completely closed up the anal aperture. During the longest straining, there was no forcing down nor protrusion of this membrane. The abdomen was swollen, but apparently not tender to the touch. The skin of the face and upper extremities was yellowish.

"A probe passed through the penis into the bladder could not be felt in the perineum.

"The parents urged an operation.

"Operation.—The membrane being freely divided, the point of the little finger was passed through the opening, but no obstruction was met with, no cul-de-sac could be felt, nor was

there any impression on the finger, during the most violent straining. While the finger was in the opening there was strong contraction upon it. The finger passed easily to the top of the sacrum. A probe was then passed into the bladder, and traced to the upper part of the sacrum with nothing intervening but the thin coat of the bladder. This was apparently closely attached to the bone, as nothing would pass between them. The bladder was not distended. As far as the fore-finger could reach, nothing was felt but the probe in the bladder, and the sacrum.

"Under the circumstances, nothing further was attempted. The parents would not permit an operation in the iliac or lumbar region.

"During the operation, some good-colored urine was passed. All the symptoms that were present before the operation, now increased, together with faecal vomiting, hiccough, and great yellowness of the skin. The child died about two days and a half from the operation. No autopsy was permitted.

"Before death, there was evidently meconium mixed with the urine, from the appearance on the cloths. The mother said that there was the same greenish color, though not so marked, once before the operation. As there was meconium evidently mixed with the urine, the intestine, whether it was the lower part of the colon or the commencement of the rectum, in all probability terminated at, and communicated with, the upper posterior part of the bladder, and was out of the reach of any operative procedure at that point." (*Records of the Boston Society for Medical Improvement, Vol. III, p. 156. Boston: 1859.*)

CASE CL.—Professor Gross, of the Jefferson Medical College, Philadelphia, reports the case of a male child in whom the anus was imperforate, and the rectum terminated in the urethra or the bladder. Dr. Gross, in this case, made the attempt to reach the rectum through the perinæum, by a very deep incision, but failed to reach it. The child survived six weeks, passing daily a little faecal matter by the urethra.

What is very remarkable, the Professor says that an uncle of this child had lived in a similar condition for upwards of thirty years. (*A System of Surgery, Vol. II., Chap. XIII., p. 765. Philadelphia: 1859.*)

(2.) *Cases in which the Rectum Terminated in the Urethra.*

CASE CLI.—Licetus relates the case of a woman who had from birth an imperforate anus, with an abnormal opening of the rectum in the urethra, through which her fæces were voided. (*De Monstrorum Causis, Natura, et Differentiis. Lib. 11. cap. 53. Patavii: 1616. 4to.*)

CASE CLII.—M. Bravais mentions the case of a little boy about four years old whom he dissected, who had been born with an atresia ani and whose excrements had altogether been passed by the urethra. The rectum curved round the bladder and opened into the urethra by a narrow prolongation. (*Actes de la Société de Santé de Lyon. Année 1801, tome 11, p. 97.*)

CASE CLIII.—M. Delesalle mentions the case of a female child with an imperforation of the anus, who passed gas and fluid meconium through the urethra. After a bougie was passed in for five days, the child could pass a few drops of urine. It died on the tenth day.

At the autopsy the rectum was found very much distended and so full of gas and meconium that the bladder was crowded out of its natural situation. When the rectum was opened and washed, it was found that it had passed down and terminated in the urethra by a small orifice. (*Bulletin de la Société Médicale d'Emulation de Paris, Juin, 1824.*)

CASE CLIV.—Flajani gives the description of the case of a child four months old, which presented no trace of an anus, and in which the fæcal matter passed out by the urethra. Otherwise the child was well formed and the perinæum and scrotum were entirely normal. Occasionally there was swelling of the hypogastrium, and the child seemed to suffer much from the attempts it made to evacuate its bowels. When it had reached the age of seven months, search was made in vain for the rectum by two punctures in the normal position of the anus. The child died a month after, presenting symptoms of retention of fæcal matter, considerable and painful tumefaction of the abdomen, cramps, &c.

At the autopsy, the colon and the greater portion of the intestines were found filled with solid excrement, and very much distended. The rectum was deficient about three inches, and terminated in a canal about four inches long, which passed under the prostate gland, and opened into the membranous portion of the urethra. The recto-urethral canal

was found completely obstructed by a cherry stone, lodged in it, which had been swallowed by the child, and which was the immediate cause of its death. (*Collezione d'Osservazioni e Riflessione di Chirurgia. tome IV. Osserv. 39. Roma. 1798-1803.*)

CASE CLV.—Zacutus Lusitanus, of Lisbon, mentions the case of a male child which had an imperforate anus with an abnormal opening of the rectum into the urethra, as the faeces made their exit altogether through this passage for three months. The anus was closed by a membrane, which was incised when the child was three months old, and a complete cure was the result. (*Prax. Med. Admir. lib. III. Observ. 72.*)

CASE CLVI.—Hochstetter reports the case of a male infant who presented an imperforate anus with an abnormal opening of the rectum in the urethra. (*In Med. Wochenschrift No. 18, 1780, No. 19, 1783.*)

CASE CLVII.—Kretschmar records a case of a male infant in whom the normal anus was absent, and the rectum opened into the urethra. (*Horn's Archiv für die Medicinsche Erfahrung. Band. 1. S. III. Par 349.*)

CASE CLVIII.—Poulettier saw a boy three years old who had an imperforate anus with a preternatural opening of the rectum in the urethra. (*Dictionnaire des Sciences Médicales. tome IV. p. 157.*)

CASE CLIX.—Schenck reports the case of a new-born infant in whom the anus was imperforate and the rectum opened into the urethra. (*Observationum Medicorum rararum, novarum, admirabilium, et monstrosarum. Lib. IV. Obs. XXIV. p. 55. Franf: 1609. Folia.*)

CASE CLX.—Sommering cites the case of a child in whom the normal anus did not exist, and in whom the rectum opened into the urethra. (*Abildungen und Beschreibungen eingiger Misgeburten. S. 53. Mainz: 1791. Folia.*)

CASE CLXI.—Lauremberg also relates a similar case to that of Sommering. (*Procerst Anat. Lib. I. cap. 16.*)

CASE CLXII.—M. Bonnet reports the case of a child who presented an imperforate anus with an abnormal opening of

the rectum in the urethra. (*Archives Générales de Médecine de Paris. Année 1829. tome XX. p. 576.*)

CASE CLXIII.—M. Willaume relates a similar case to that of M. Bonnet. (*Journal des Progress. tome VIII. p. 238.*)

CASE CLXIV.—Randolphe records the case of a child who with an imperforation of the anus had an abnormal opening of the rectum in the urethra. (*Encyclopédie des Sciences Médicales de Paris. Année 1839. p. 195.*)

CASE CLXV.—Dumas saw a child two days after birth, which had no anus, but in place of the anus had two fissures of the skin. The space which they enclosed was thick and filled with hard tissue. The urine was mingled with faecal matter. They searched in vain for the rectum by the perinæum. The finger introduced by the perinæal wound struck the ischium. The cavity of the pelvis was, therefore, very narrow. The child died. At the autopsy the lower part of the colon was found distended with gas and faecal matter, and jutting against the abdominal muscles. The rectum seemed a straight sac, movable and directed towards the left side of the neck of the bladder, and opening into the posterior part of the urethra. (*Recueil périodique de la Société de Médecine de Paris. tome III. p. 46.*)

CASE CLXVI.—M. Williams communicated a case of imperforation of the anus and rectum in a male infant in whom the rectum opened into the urethra. The great difficulty of passing the faeces by this canal, compelled the surgeon to form an artificial anus in the perinæum at the normal place of the anus. It was necessary to penetrate to a considerable depth before the end of the rectum could be reached. The faeces now pass equally through the urethra and by the newly-formed anus. (*Revue Médicale de Paris, Année 1826. tome III, p. 170.*)

CASE CLXVII.—The following highly interesting case was reported by M. Roux de Brignoles, and fully illustrates his peculiar method of operating in such instances. The difficulties, though formidable, were all overcome, and complete success crowned the operation.

"The case was that of a new-born male infant in whom there was an atresia both of the anus and of the urethra. No trace of an anus could be discovered in the perinæum either by the sight or the touch, and the urethra was closed

by a thin membrane at the base of the glans, constituting a kind of hypospadias. The child had been almost wholly neglected for nearly two days, the labor having been superintended by an ignorant midwife. M. Devezé, a neighboring physician, was first called, who after having ascertained the real nature of the case, and finding that the urethra was closed, and that the penis was in a state of erection, at once perforated the occluding membrane with a stilette, and the urine was voided. He, however, did not venture to search for the anus. On the 15th of May, 1833, two days after the birth of the child, M. Roux was called in consultation. The countenance of the infant exhibited signs of great suffering, the skin was dry and yellow, the abdomen tympanitic and painful, and the convolutions of the intestines could be distinctly traced upon its surface; there was frequent hiccup, with vomiting of milk and sugar-water which had been given. Notwithstanding the difficulties of the operation under such unfavorable circumstances, M. Roux determined to hazard the performance of it, in order to save the child's life. This he did in the following manner:—He placed the little patient on the lap of an assistant, in the same manner as for the operation of lithotomy, and with a scalpel divided the skin to the extent of about an inch, in the exact line of the raphé, or in the situation which the anus ought to have occupied. On separating the lips of the incision, the fibres of the elliptic muscles of the sphincter could be seen and were carefully dissected aside, and on arriving at the levatores ani muscles, their fibres were also separated towards the coccyx for fear of wounding the bladder. The incision at the depth of an inch, and just above the last layer of muscles, terminated in a mass of cellular tissue, in which a soft and fluctuating tumor was perceptible to the finger. The scalpel was now laid aside and a straight bistoury was directed to the spot of this indication of the rectum, the point being turned obliquely upwards and downwards, in order to avoid the bladder, and soon entered a cavity which proved to be the rectum. For the purpose of enlarging the intestinal opening thus made, the handle of the bistoury was then raised and the blade withdrawn in this position, which at once gave exit to a large quantity of meconium, and announced the success of the operation. Injections of marsh-mallows water were now thrown up to wash out the intestine, and a roll of lint smeared with cerate was introduced into the wound and maintained there. This kind of dressing was continued for two weeks, after which on two occasions, granulations sprouted up from the borders of the

wound, and narrowed and obstructed the newly made passage to such an extent that the faecal evacuations became much less frequent, and were voided with much greater difficulty, and what was very remarkable at the same time, a small quantity of faecal matter was discharged through the urethra after each passage of urine. In the first instance, these difficulties which seriously threatened the success of the operation, were for a short time entirely overcome by simply enlarging the newly made opening towards the coccyx with the bistoury. In the second instance however, when the granulations again returned causing the same difficulties, they were destroyed by the nitrate of silver, and the artificial anus was kept open and enlarged by the frequent introduction of bougies, until complete cicatrization took place, and the faecal matter no longer came by the urethra. Afterwards the artificial anus fulfilled completely all the functions of a natural one. The child lived and enjoyed good health. [Vide *Plate X, Figure 3.*]

M. M. Capuron, Roux de Saint Maximin and Moreau, to whom this case was referred by the Royal Academy of Medicine, in their report highly extol the method pursued in it, by M. Roux de Brignoles. (*Gazette Médicale de Paris: Juin 28, Année 1834.*)

CASES CLXVIII—CLXIX—CLXX.—M. Velpeau says, that he met three cases in children of the male sex, in which the rectum opened into the excretory duct of the urine. (*Mott, op. cit. p. 1086.*)

CASE CLXXI.—The following case was communicated to the “*Boston Medical and Surgical Journal.*”

“ This case occurred recently in the practice of Dr. J. H. York, of South Boston, and the subject of it was a male child. Intestine punctured on the third day, with a trocar, and about two ounces of meconium drawn off. Canula left in for a week; and the opening being then dilated with a sponge, the faeces passed tolerably well. At the end of six or eight weeks, the opening having been still further enlarged with a knife, a silver tube, three eighths of an inch in diameter was introduced and kept in for about a year; the faeces meanwhile passing off well. Occasionally the instrument was removed and cleansed; but once or twice it became corroded and obstructed, and then it was observed that the faeces passed through the penis; this last fact being first noticed when the child was about six months old.

“ Three or four mouths before its death, the parents removed

the tube, without the sanction or knowledge of Dr. Y.; and soon after that time the faeces began to pass through the penis, and continued to do so ever afterwards. For a time they passed also through the artificial opening, but for the last two months not at all. The general health of the child was quite good, and it died at last from the effects of a fall that it received a few days before its death.

“*Autopsy.*—On dissection, the rectum was found to be very much enlarged and moderately thickened; containing some liquid faeces, besides a quantity of foreign matter. The opening into the urinary passage was direct, perhaps two lines in diameter, and, upon cutting open the urethra, found to be just in front of the verumontanum. The opening that had been made during life had so nearly closed, that, though air could be forced through before the parts were cut open, the head of a very small pin could not be made to pass. Otherwise the rectum presented no unusual appearance, excepting a soft, fleshy growth, about one and a half lines in diameter, projecting from the inner surface, situated upon the anterior face of the intestine, a few inches above its termination, and divided into two equal parts as if cut with a knife. The bladder contained some liquid faeces, but no foreign substances such as were found in the intestine; inner surface perfectly healthy, and organ otherwise not remarkable.” (*Boston Medical and Surgical Journal.* Vol. XLII. p. 273. Boston: 1850.)

CASE CLXXII.—Mr. Fergusson records the case of a male child in whom the anus was imperforate, and the rectum opened into the membranous portion of the urethra.

“An opening was made into the neck of the bladder, as was supposed, and the operation was, in as far as circumstances would admit, perfectly successful. The boy lived and thrived till he was six years old, when he died of disease of the lungs. Although it may be doubtful if there was a sphincter or levator muscle here originally, he had the command over the aperture and the urinary apparatus that children usually possess. Occasionally when his bowels were loose, a few drops of faeces would come by the urethra, and he was wont also to discharge part of the urine by the artificial opening. On several occasions, small hard urinary deposits were discharged from the anus, and I had to extract one about the size of a hazel-nut. Often his mother had to remove small seeds and barley pickles from the orifice of the urethra, and once she extracted a small portion of a bone which he had swallowed in his food.

"On inspecting the parts after death, I found that the bowel terminated in the membranous portion of the urethra by an aperture, about the size of a lancet puncture, and not in the upper end of the bladder, as was originally imagined." (*A System of Practical Surgery. 4th American Edit.*, p. 545. *Philadelphia*: 1853. *Also, Edinburgh Medical and Surgical Journal. Vol. XXXVI.*, p. 363. 1831.)

CASE CLXXIII.—Dr. Nagel, Professor of Surgery at Claussenbourg, communicated, on the 25th of August, 1855, to the "Society of Practical Medicine of Berlin," the following case of imperforate anus, with an abnormal opening of the rectum in the urethra.

"This was the ease of a male infant in whom no anus existed. A small tumor a little elevated above the skin was the only indication of an anus. The meatus urinarius was immediately in front of the scrotum. Hypospadias and imperforation of the anus therefore existed at the same time. Through the meatus urinarius small cylinders of faecal matter passed from time to time, mingled with the urine, which sometimes however passed unmixed. A curved sound introduced by this passage could easily be so turned that its terminal extremity was felt in the normal position of the anus. An incision was made upon the sound, the wound was dilated, and a pasteboard cylinder was introduced into the rectum. During several days a small quantity of faecal matter passed by the urinary meatus, and of urine by the anus. At the end of some months the child was doing well, the anal opening was sufficiently large, and the urine passed by the urethra alone, and the faecal matter by the anus." (*Recherches Cliniques et Critiques sur l'Anus Artificiel. Par le Dr. Hermann Friedberg. Archives Générales de Médecine de Paris. Mai, 1857*, p. 580.)

CASE CLXXIV.—M. Godard, a resident Hospital student of Paris, presented to the "Société de Biologie de Paris," in July, 1855, three anatomical preparations and six drawings, relating to three cases of congenital imperforation of the anus, which came under his observation at the *Hospital Necker*, and at the *Hospital des Enfants Malades*, within the year 1855. These cases are highly interesting in several respects. They all occurred within a short period of each other; they were all male children; the rectum in each terminated very singularly in the urethra by a narrow, pipe-like prolongation, and the operations in each were soon followed by death. I have presented these cases almost entire, translated from the origi-

nal. The following is M. Godard's third case; his first and second cases will be found in the chapter on *Abdominal Artificial Anus*. [Vide *Cases CCLXXIX—CCLXXXIII.*]

"Charles Prosper Orcel was born on the 27th of June, 1855. On the day after his birth the midwife discovered that he had no anus, and that the meconium passed by the urethra with the urine. This child was admitted into the hall Saint Côme of the Hospital *des Enfants Malades*, on the 29th of June; on this day, as well as on the preceding, it had several times vomited a peculiar matter, having the odor and the appearance of meconium. Pressure upon the abdomen caused the meconium to be discharged in jets from the urethra. M. Guersant, the surgeon of the hospital, made an incision in the perineum, three-eighths of an inch long, and then pushed in a trocar in the direction of the sacrum, and at once the meconium flowed through the canula. This opening was enlarged and an elastic sound was inserted. On the 30th of June the vomiting ceased and the intestinal matters passed both by the urethra and by the canula. On the first of July there was no change in the condition of the child, and on the third it died.

"The autopsy was made on the fourth of July, and gave the following results:—The peritoneum was slightly vascular, and in the pelvic cavity at the left of the rectum it presented a wound, apparently owing to the puncture of the trocar. The superior extremity of the rectum was normal, and passed obliquely from above downward, and from left to right; it adhered behind to the sacrum and coccyx, and in front was directed towards the bladder and to the prostate, both of which it touched. On the left, the rectum was adjacent to an abscess, which, as in the first case, was the result of the punctures of the trocar; the wound in the peritoneum proves this. On the right there was nothing in the rectum worthy of notice. The inferior extremity of the rectum terminated in a sack-like dilatation, and presented on its left side an oblong opening, whose greatest axis was directed from before backwards. At the circumference of this orifice a fibrous cylinder was sent off, which extended as far as the anal region. This cylinder was formed by a condensation of the cellular tissue of the part, and was the result of the operation. Around this canal the external sphincter could be dissected; the fibres composing it were in layers and very distinct. This muscle was three-eighths of an inch in height. The dilated portion of the rectum being laid open, a funnel-shaped orifice was observed on its anterior wall, which led into a small canal which passed under the prostate and opened in the urethra just in front of the urethral crest. The peritoneum descended

as usual along the anterior face of the rectum, flexed upon the bladder, and at the point of reflection was seven-eighths of an inch distant from the cutaneous surface of the perineum." (*Gazette Médicale de Paris. Année 1855, No. 44, p. 700.*)

In relation to the cause of the formation of the *fibrous cylinder* mentioned in the preceding case, M. Friedberg, of Berlin, in the pathological part of his invaluable Essay on Artificial Anus, makes the following comment: "M. Godard considers this cylinder the result of the operation. I contest this opinion for two reasons—First, a fibrous cord could not form, by condensation of cellular tissue, in four days after a wound. Second, M. Godard says that he found the external sphincter very clearly developed around this cylinder, as well as fibres covering it to the height of three-eighths of an inch. It evidently follows that this fibrous cylinder descending from the corrugated part of the rectum, was actually the end of this intestine which had been obliterated, and upon which the movable intestinal canal was extended, when it was dilated with the accumulation of meconium."

Friedberg is doubtless correct.

(3.) Cases in which the Rectum Terminated in the Vagina.

CASE CLXXV.—Benivenius describes the case of a girl who had an imperforate anus with an abnormal opening of the rectum. This girl, two days after her birth, commenced to discharge her faeces per vaginam, and continued to do so until she died, which event took place in her sixteenth year. She died with most excruciating colic pains, doubtless in consequence of obstinate constipation and induration of the faeces, for she usually had but one alvine evacuation in eight days. (*Libellus de Abditis nonnullis ac mirandis Morborum Sanationum Causis. cap. 86. Basil: 1529.*)

CASE CLXXVI.—Van Swieten relates the case of a young woman who was afflicted with the same disgusting malformation as the one mentioned by Benivenius. There was in this case an imperforation of the anus with an abnormal opening of the rectum.

No surgical operation is said to have been performed either in the case of Benivenius nor in this of Van Swieten. (*Com-*

mentaria in Hermanni Boerhaave Aphorismos de cognoscendis et curandis Morbis. Lib. IV. Aph. 1340, p. 575. Ludg. Bat. 1785.)

CASE CLXXVII.—Mercurialis relates the remarkable case of a young Jewess, the daughter of a resident of Padna, named Tentonicus, who was born without an anus, and discharged the faeces altogether through the vagina. (*De Morbus Puerorum. Lib. I. c. 9, Venetiis: 1783. 4to.*)

In this curious and far-famed case of that day, there was an imperforate anus with an abnormal opening of the rectum into the vagina, through which the faecal matter was discharged; yet strange to say, that this remarkable patient, with this great affliction, attained to the extraordinary age of a whole century, as Morgani testifies. He also says that Mercurialis performed no operation himself in this case, and advised the father of the girl never to suffer one to be performed by any one. (*De Sädibus et Causis Morborum Epist. XXXII. Art. 3. Venetiis 1761. 2 tom. Folia.*)

CASE CLXXVIII.—De Jessien mentions the case of a girl seven years old, whom he knew, who had an imperforate anus with an abnormal opening of the rectum. This girl from infancy had always discharged her faeces per vaginam. No operation is mentioned as having been performed. (*Histoire de l'Académie des Science. Année 1719. p. 42.*)

CASE CLXXIX.—Hæsbart says that he saw a young woman, twenty years of age, who passed her faeces altogether per vaginam, the anus being imperforate. She always had excellent health. No operation was performed. (*Miscellanea curiosa sive ephem. acad. natur curiosor, decur. II. ann. X. Observ. 75. p. 132. 1691.*)

CASE CLXXX.—Dodonæus records the case of a child in whom the anus was imperforate and the rectum opened into the vagina. (*Annotationes ad Benevium, cap. IX.*)

CASE CLXXXI.—Amatus Lusitanus records a case of a female infant in whom no natural anus existed, and the rectum communicated freely with the vagina. (*Curationum Medicinalium. Cent. II. curat. 10. Venet: 1653.*)

CASE CLXXXII.—Schenck also reports a case of a female child in whom no normal anus was present, and in whom the rectum opened in the vagina. (*Opus citatum. Lib. III. Sect. I. obs. 258. p. 458.*)

CASE CLXXXIII.—Petermann observed a child in whom no natural anus existed, and in whom the rectum opened into the vagina. (*Observationes Medicæ, dec. II. Obs. 2. Lipsæ: 1707.*)

CASE CLXXXIV.—Hartmann saw a child that was in excellent health and growing rapidly, who presented an imperforate anus, and who passed the faeces altogether per vaginam. (*Miscellanea curiosa sive ephem. acad. natur curiosor, decur. II. ann. 1691. p.279.*)

CASE CLXXXV.—Alix saw a child in whom no anus existed naturally, who by an abnormal anns, discharged the faeces through the vagina. (*Observationes Chirurgicæ, tome III. p. 203. Altenburg: 1774.*)

CASE CLXXXVI.—Papendorf observed a female infant in whom no normal anus existed, whose rectum communicated with the vagina by two abnormal orifices, and through which all the faecal matter was passed. (*Abhandlung von der angebohrnen Verschließung des Afters bey Kindren. Leipzig: 1783.*)

CASE CLXXXVII.—Wandermonde saw a female child in whom all the faeces were passed by the vagina, there being no natural anus. (*Recueil Periodique de la Société de Médecine de Paris, tome VI. p. 128.*)

CASE CLXXXVIII.—Arand relates the case of a female child in whom there was an imperforate anns and a communication of the rectum in the vaginal canal, through which the feces were passed. (*Observat. Med. Chirurg. obs. IV. p. 28.*)

CASE CLXXXIX.—Fürst reports the case of a female child who presented an imperforate anus, with the rectum opening into the vagina. (*Miscellanea curiosa sive ephem. acad. natur curiosor. decur. II. ann III. obs. 112.*)

CASE CXC.—Bonn records a case in which the anus was imperforate and the rectum opened into the vagina. (Papendorf. *Opus citatum.*)

CASE CXCI.—Kirsten saw a child whose anus was imperforate and the rectum terminated in the vagina. (*Act nat. cur. Lib. IX. obs. XI. p. 24.*)

CASE CXCII.—Rochard observed the case of a female infant in whom the anus was imperforate and the rectum communicated with the vagina. (*Journal de Médecine, Chirurgie, Pharmacie. tome LXXXV. p. 370.*)

CASE CXCIII.—M. Fournier relates a very interesting case in which he was called to consult, of a woman who had been five days in labor. On making an examination, he discovered no trace whatever of an anus in its natural situation, it being congenitally imperforate; the rectum he found filled with faeces, compressing the uteris, and that the abnormal opening of the rectum which was large, entered the vagina. He administered an enema, after which the faeces were evacuated, and the *accouchement* safely terminated. (*Dictionnaire des Sciences Médicales. tome IV. p. 155-6.*)

CASE CXCIV.—Mr. Cooke, whilst attending a woman in labor, who was nearly forty years of age, discovered that with the descent of the foetal head, excrementitious matters escaped per vaginam; and also that a congenital communication existed between the vagina and the rectum, sufficiently large to admit two fingers. (*English Translation of Morgagni. Vol. II. p. 110. Boston: 1824.*)

CASE CXCV.—Mr. Cooke reports the case of a female infant which was brought to him, in which the rectum communicated with the vagina, through which all the faeces were discharged. An anus indeed existed at the natural situation, but so rigidly contracted that a small probe could scarcely be introduced. (*Opus citatum.*)

CASE CXCVI.—Mr. Howship reports the following case of imperforate anus with an abnormal opening of the rectum in the vagina.

"In 1815, I was requested by my friend, Dr. Samnel Merri-
man, to examine the body of a young woman, aged seventeen,
who had died of a scrofulous disease, and who from birth had
evacuated her stools by the vagina; although there was in
this case no want of power of retention.

"*Post-Mortem Examination.* There was an external mark
in the natural situation of the anus, but no opening. Upon
laying open the abdomen, the intestine rectum was traced
down to the posterior part of the vagina, to which it was
adherent.

"The vagina being removed and laid open, the intestine was
found to open upon its surface, by a very vascular and prom-

inent sort of papilla, situated within the vagina, near the os externum." (*Practical Observations in Surgery and Morbid Anatomy*. p. 321. London : 1816.)

CASE CXCVII.—The following highly interesting case in which the rectum terminated, by an abnormal opening, in the vagina, was communicated to the '*Medical Recorder*' by the able and distinguished surgeon, J. Rhea Barton, M.D., formerly surgeon of the Pennsylvania Hospital, and of the Philadelphia Alms-House Infirmary.

"The subject of this imperfection was a female infant, already six weeks old. Upon examining the part, not the slightest trace of an anus was to be seen; but I soon observed the faeces, says Dr. Barton, with much suffering to the patient, simultaneously voided with the urine *per vaginam*. A minute inspection of this part, led to the discovery of a fistulous aperture through the recto-vaginal septum, and communicating with some part of the intestine. The mother evinced that degree of distress at the unhappy deformity of her offspring, and commiseration for its sufferings that might be expected from a tender parent, and was extremely solicitous for its relief. Accordingly, the operation, as is usually directed in cases of imperforate anus, was performed; namely, by making an incision through the parts where the anus should be, &c., &c. The instrument passed into the rectum, and upon withdrawing it, faeces escaped freely. The part was then plugged with patent lint dipped in sweet oil, to prevent re-union. Not many days before the wound began to granulate and rapidly cicatrize; to prevent, therefore, its closure, a piece of bongie was introduced, and brought out of the vagina through the original opening into it. This tent caused much irritation and suffering; but as it was deemed advisable, its use was persisted in for several weeks. The mother, who in the meantime had left the city with her infant, finding it productive of no good effect removed it; and the part soon closing up, rendered the operation abortive.

"When the infant had attained the age of nine months, the father called upon me, and announced the increased sufferings of his child, owing to the still existing defect, and greater retention of faeces, from their becoming more consistent as the patient grew older, stating also, that without the effect of aperient medicines, there would be an evacuation not oftener than once in four or five days, and sometimes prolonged to a period threatening death.

"In taking the case into further consideration, the following mode of operating suggested itself to me, as one promising

success. To take for my guide into the rectum the opening communicating with the vagina; to introduce into it a director, and with a bistoury to lay open the vagina and integuments as far back as the part where the anus should be; there to remove a small portion of the integuments, if necessary, and to dissect down until I came to the termination of the gut, and to open it freely. By this operation the anterior boundary of the incision would be the fistulous opening in the vagina, and posteriorly it would terminate where the natural outlet ought to be found. The subsequent treatment to consist in endeavoring to promote granulations and the cicatrizing of the original opening, and so much of the anterior portion of incision as rendered the vagina incomplete; in the mean time, to keep the remainder open until this shall have been effected. This plan was pursued, and I had the pleasure to succeed most perfectly in all my views. The integuments around the incision retracted, and thereby obviating the necessity of removing them. The original aperture closed up with that part of the incision connected with it. The vagina became complete, and a route direct from the rectum was established, having no communication whatever with the vagina.

"In this case there was no *sphincter ani* muscle; in consequence of which I had nearly been deterred from the operation, by the opinion of some of my medical friends, who maintained that even though I should succeed in establishing a direct outlet from the rectum, the patient would throughout life, labor under the lamentable misfortune of being unable to control the evacuations, for want of a sphincter muscle. Reflecting, however, upon cases of *fistula in ano*, where this muscle had been divided by the bistoury, I recollect that the patients even there were enabled to exercise a limited degree of restraint over the part by the action of the general muscular coat of the rectum, or, as it is sometimes described, the internal sphincter muscle. Under a belief, therefore that this part of the structure, from continued use, would in time assume the functions of a proper sphincter, I operated with confidence of success, and was not disappointed. The little patient never found any difficulty from that source." (*Medical Recorder*, Vol. VII. p. 357. Phil. 1824.)

CASE CXCVIII.—The following interesting case, similar to that operated on by Dr. Barton, was communicated to the "*Medical Recorder*," by Dr. Satchell, then House Surgeon to the Pennsylvania Hospital. The late and lamented Dr. Parrish, of Philadelphia, was the successful operator in this case.

"Jane Dimmick, aged about fifteen months, was admitted into the Pennsylvania Hospital on the 6th of February, 1823, during Dr. Parrish's tour of duty. She was afflicted with imperforate anus, the faeces being passed per vaginam through a small opening situated about half an inch from the os externum. The depression in which the anus should have existed, was quite smooth, and exhibited no mark whatever of the proper structure. The child passed her faeces with considerable pain, at intervals of ten days or two weeks, which were fluid or of a very soft consistence.,

"Under the impression that the rectum terminated in a cul-de-sac, Dr. Parrish, on the 18th of February, performed the following operation. A probe, having a curvature suited to the purpose, was introduced into the vagina, thence through the orifice of communication into the rectum, so as to protrude the integuments in the place where the anus should have been. An incision was then made upon the point of the probe with a small scalpel through the integuments, and the opening thus formed was freely enlarged both anteriorly and posteriorly, by means of a bistoury, until it was supposed that the intestine was opened, no discharge of faeces being the only circumstance of evidencing the contrary. Presuming, however, that the rectum was freely opened, a silver tube somewhat in the form of a nipple, with a curvature adapted to the bowel, and with shoulders, anteriorly and posteriorly, for the purpose of confining it in its situation by means of tape, was introduced with the view of obviating a closure of the wound, and at the same time of allowing the evacuation of the faeces. But in the course of two or three days, it was positively ascertained that the rectum had not been opened, and that even if it had been opened, it would have been utterly impossible to have prevented a reclosure of the gut.

"The disease, or rather the malformation being unique in the practice of the institution, it elicited a good deal of attention and interest, and it was ultimately agreed to attempt a mode of cure, which had proved entirely successful in a very similar case that had occurred to Doctor J. R. Barton. Encouraged by the success of this case, Dr. Parrish performed a like operation upon his little patient, and had the pleasure of succeeding to the extent of his wishes. A very large quantity of impacted faeces was found to occupy the rectum, and by means of the handle of a teaspoon, enemata, and repeated doses of the Olei Ricini, the bowels were thoroughly emptied.

"On the 6th of March, two days after the last operation, the child voided an unaltered water-melon seed, which must hav

been in the bowels since the preceding fall; and indeed there is reason to believe that she never passed any solid excrement. The faeces were at first of a dark color, and very offensive, but soon acquired the natural yellow appearance. The wound healed; and on the 27th of March, three weeks and two days after the second operation, the child was discharged cured. At the time of her discharge, she appeared to possess considerable power over the anus, and indeed she could retain or discharge her faeces at pleasure.

"We have every reason to believe, that the rectum terminated in this case, in the vagina, and not in a cul-de-sac, as was at first presumed. I will merely add, that no dressings were used, but the finger lubricated with simple cerate was introduced every day or two, in order to do away any tendency which the opening might have to heal." (*Medical Recorder*, Vol. VII. p. 359. Phil.: 1824.)

CASE CXCIX.—Professor Dieffenbach reports the case of a female child three months old, in whom there was not the least trace of an anus visible externally, the rectum terminating in the vagina in its posterior wall, by an abnormal opening. In this case Dieffenbach performed the following operations at two different times. He first introduced a grooved director considerably curved, through the vagina into the recto-vaginal orifice; thrust a pointed bistoury immediately below the fossa navicularis, out-side of the vagina, into the groove of the director, and divided all the cellular and muscular tissue between the point of the puncture and coccyx. He then dissected off the end of the rectum from the abnormal opening, and isolated it for some distance from the surrounding parts, which enabled him to draw down the freed end of the bowel and attach it to each edge of the cleft perinæum. The cut edges of the rectum united to the skin, and the recto-vaginal aperture closed very completely, after having been occasionally touched with the nitrate of silver.

Three weeks after the first operation, and after complete union of all the wounded parts had taken place, he attempted the formation of an artificial perinæum. He commenced by finishing the separation of the superior wall of the rectum from the vagina with a bistoury. This portion of the rectum thus set free in the centre, contracted considerably, and receded about half an inch. The deep-seated soft parts were brought together by a needle-stitch, whilst the edges of the wound were united by two short hare-lip pins and the twisted suture. The cure was completely successful. (*Über die*

Verschliessung des Afters. In Heckers literarischen Annalen. January, 1826. S. 31.)

CASE CC.—Ashbell Smith, M.D., of Salisbury, North Carolina, reported the following case:

"This was the case of a female infant. The accouchement of the mother was at the end of the ordinary period; of the first child, easy, and presenting nothing worthy of record. The child was of the usual size, healthy, and exhibited no malformation except the one which I am about to describe. Some time after its birth, it was discovered that an anus was wanting, and that the excrements were voided through the vagina. The patient continued to void her faeces, in this way, till she was four months old, lacking five or six days, when an operation for artificial anus was performed.

"At the time of the operation, July 7, 1834, the general health of the little patient was good, unless we except a somewhat costive habit. It has been raised partly by the bottle, in consequence of a deficient secretion of its mother's breasts; but the derangement of its health was not greater than almost invariably accompanies imperfect nourishment, in the way instituted by nature. The genital organs, on careful examination, did not present *externally* anything remarkable or abnormal. The clitoris, the labia, the fourchette, the meatus urinarius, were of the usual size and well formed. The hymen existed, but was small. Whether the os tineæ, and of course the womb, existed, I could not conveniently discover. The rectum terminated in the posterior and upper portion of the vagina. The perinæum offered no trace of anus, except it were that the place it should have occupied was thought to be marked by a very slight brownish discoloration.

"The operation was performed in the usual way. Assisted by my friend, Dr. E. R. Gibson, I made an incision in the place commonly occupied by the anus, and continued it along the direction of the coccyx until I arrived at the rectum. The depth of this incision was from nine to twelve lines. The rectum was thus opened to the extent of two-thirds or three-fourths of an inch, and some fecal matter was discharged through the incision. A transverse incision was made, and a tent smeared with sweet oil, was placed in the wound to keep it open. No untoward symptom succeeded the operation; the inflammation was moderate, and did not extend beyond the wound, nor in any degree complicate the general health.

"About seven months after the operation, February, 1835, I again saw the patient. The artificial anus was perfectly

healed, and would then easily admit an urethral bougie of the largest size, being of less dimensions than the original incision, in consequence, as is probable, of the difficulty in maintaining the tent in its place. The tent had been for a long time disused, and the artificial anus showed no disposition to contract further. Its parietes were covered with a smooth and apparently organized membrane. The faeces were discharged partly through the recto-vaginal canal. It was intended to enlarge, at some future time, the artificial anus, but the patient died of an acute disease some weeks subsequently to the last date, or more than eight months after the operation. No eadaveric examination, I understand, was made." (*American Journal of the Medical Sciences. No. XXXIV.*, p. 341. February, 1836.)

CASE CCI.—The celebrated M. Rieord, of the Hospital du Midi of Paris, relates a very interesting case of a courtesan twenty-two years of age, in whom the rectum terminated in the lower and back part of the vagina by an orifice which permitted the introduction of the index finger without pain, who had come, at the request of one of her lovers, to consult him as to whether or not she had a *blennorrhagia*.

"M. Rieord introduced the speculum easily, and at first nothing abnormal was seen. The depth, however, to which the instrument was carried without meeting the neck of the uteris, began to excite some astonishment, when a lump of faecal matter was brought into view, simulating to the touch, the os uteri; and also some grape seeds, at first taken for vegetations. Some malformation being now suspected, a more careful examination was made. The external organs were natural, but there was no anus, the place where it ought to be being marked by a brown spot, irregularly radiated and of the size of a shilling. The ring of the vulva did not present any earunculæ myrtiformes, had eccentric folds of mucous membrane, and possessed a much greater contraction than the natural constrictors of the lower part of the vagina, but less than the sphincter ani. Beyond this vulvar ring, the finger passed easily into the recto-vaginal canal. No transverse rugæ were found as usual in the vagina, and the speculum, when introduced to its full length, was arrested by faecal matter. No trace of the uterus could be seen or felt. By her account, the faeces were always passed by the vulva, and were perfectly under the command of volition, but flatus sometimes escaped involuntarily. When the faeces were at the vulvar ring, she felt a desire to go to stool, and when this desire was satisfied, the finger, introduced as far as possible,

no longer met with any obstacle. An injection was always used immediately after, and she was careful in keeping herself clean. Menstruation had never shown itself under any form, and no trace of blood was ever found in the urine or faeces. Although she had lived with one of her lovers for three years, he never, in the least, suspected any malformation. She never had been subjected to any operation." (*Journal Universel et Hebdomadaire de Médecine, etc. tome XII., p. 167. Paris: Octobre, 1833.*)

CASE CCII.—Switzer mentions the case of a public girl whom he knew, who had a congenital imperforate anus, and in whom the rectum opened into the vagina. This girl informed him that she suffered no pain in passing the faeces, or was in the least troubled if she washed herself well with a sponge after each evacuation. If her words are to be believed, says Switzer, she had numerous lovers. (*Annotationes in Colotomiam, p. 79. Hafniae: 1826.*)

CASE CCIII.—On the 12th of October, 1857, C. G. Page, M.D., read to the "Boston Society for Medical Improvement," the following very interesting account of a case of imperforate anus, with the rectum terminating in the vagina. The case was that of Dr. S. F. Ainsworth.

"Mrs. K—— was delivered of a female child, mature and of average size, early on the morning of Monday, July 20th, 1857. On examination, two openings were found in the vagina, one occupying the place of the urethra, the other situated between the internal labia and surrounded by a small red tumor, the size and shape of a common bean. Both these openings barely admitted a common probe, and from both, while under examination, a small quantity of yellow meconium and urine was expelled. There was no external trace of the anus, the skin over the entire perinæum being smooth, and the raphé extending to the coccyx. At each expulsion of the meconium or urine by the vagina, a slight motion was observed in the perinæum, as if some fibres of the levator ani were inserted into the fascia. On exploring the openings in the vagina, it was found that a probe carried upward close to the pubis passed into the bladder, and could be felt on the abdomen; but directed backward and upward, it passed in half its length and then encountered a firm body which was supposed to be the upper part of the sacrum. When passed downward, the point could be carried a few lines below the orifice and indistinctly felt in the perinæum. The child being quiet and apparently healthy, it was decided to cut down on

the perinæum, and, if possible, bring down the rectum. On Tuesday, assisted by Drs. C. G. Page and C. H. Stedman, the operation was commenced by introducing a probe into the lower opening in the vagina, and passing it downward as far as possible. An incision was then made along the raphé of the perinæum, and continued in the track of the rectum about an inch and a half; the point of the probe was then distinctly felt, the tissues were carefully separated from the cul-de-sac, and the intestine easily drawn down to the external opening, where it was laid open, the serous surface everted, and confined by sutures to the edges of the external wound. A quantity of flatus escaped at the moment of opening the intestine. A small tent was placed in the wound, a wet compress on the perinæum, and a T-bandage applied. The patient, until the following Sunday, was attended by Dr. Page. During that time, the child did well. On visiting the child on Sunday, the wound was looking well. The nurse, for the first time stated that there had been, since the birth, intervals of great distress of breathing, accompanied by a purple discolouration of the face, neck, lips and ears. These turns increased in frequency, and the child died on Tuesday, having lived eight days.

"The following is the account of the autopsy :

"The heart was found malformed, there being but one ventricle into which the aorta opened directly at its summit ; the only auricle was situated on the right posterior aspect, communicating obliquely with the ventricle. The pulmonary artery was very small, given off below the point where the aorta enters the heart, and on the left side passing upward and backward and bifurcating behind the aorta. An imperfect valve projected into the ventricle, attached by two short and firm columnæ carneæ, and by two slight cordæ tendinæ to the upper and lower left sides. The pulmonary veins opened into the auricle. The rectum terminated in a cul-de-sac about an inch and a quarter from the perinæum, and communicated with the vagina from its upper borders. The uterus was bifid. No other abnormal appearances were observed." (*Boston Medical and Surgical Journal. Vol. L VII, p. 239. Boston : 1857.*)

(4.) *Case in which the Rectum, together with the Urethra and Vagina, terminated in a Cloaca in the Perinæum.*

CASE CCIV.—The following case, reported by M. Saviard, is the only one on record as far as my reading extends, in

which this extraordinary anomaly was observed in the human subject.

"On the 6th of January, 1692, a woman was delivered of a child at the *Hotel Dieu*, in Paris, which was very defective in its conformation, both internally and externally. This child having only lived a few days, I carried its body to my room to examine it with M. de Verney, who had desired me to show him all the subjects that were remarkable.

"The hands were alike externally, down to the knuckles, very even on the outside, and on the inside such folds as are common; there were no fingers at the extremity, but they terminated in a large lump; its feet were like the hands, without toes, and terminated in the same manner.

"We discovered by the dissection of the extremities, that the bones of the carpus and metacarpus, of the tarsus and metatarsus, were complete in number and order; the whole difference consisted in this, that it was observable there appeared at the end of each bone of the metacarpus and metatarsus, a small elongation that seemed to be disposed to form the phalanx of a finger or a toe, but it seemed as though the formation was incomplete for want of matter.

"There was nothing extraordinary in the structure of the thorax; but when we came to examine the remainder of the umbilical vessels, we observed, that beside the umbilical vein, there was only one artery instead of two, which are branches of the iliac or hypogastric, and that this artery was formed from the trunk of that artery which ought to have produced the left iliac. When I penetrated into the cavity of the abdomen we observed the *capsulae atrabilares* thrice their natural dimension and their vessels of the ordinary magnitude. At length, not finding in the *regio lumbaris*, either on the right or left side, neither kidneys, emulgent vessels nor ureters, we began to doubt whether the *capsulae atrabilares*, being of uncommon size, had not supplied the defect of those organs that were wanting; which induced us to examine carefully whether these *capsulae* had no excretory ducts that might serve for that purpose. Meeting with no success in this enquiry we prosecuted our dissection to a tumour upon the *os sacrum*, at the place where it begins to be curved in order to form the *pelvis* of the hypogastrium. Having opened the membrane covering this tumour or protuberance, we perceived the two kidneys at a quarter of an inch distance from each other, but fastened together, notwithstanding, by means of a small ureter proceeding from the left canal; and this common canal discharged itself into a large *Hole*, which we call the *Cystis Communis*.

After we had examined the irregular disposition of those

organs mentioned, we endeavored to discover the sex of this infant, which had no apparent marks of either externally, by which a male could be distinguished from a female. To this end we made use of a blow-pipe, and blew into the *cystis communis*, whose aperture was the only one external. The blow-pipe introduced into this *cystis*, afforded us the opportunity of observing the inflation of those two small canals, which were perceived to rise above a finger's breadth, so that pursuing this inflation, we found two small wombs, each of them having a spermatic vein and artery distributed on their proper side to a small testicle, which according to custom, was fixed to the *ligamentum latum*. These two wombs had each their *ligamenta lata* and *rotunda*, near their trunks and borders, their *vasa deferentia*, and a short *vagina*; nevertheless the right, somewhat longer than the left, emptied itself a little lower into the *cystis communis*, and the small left *vagina* was pierced to receive what was discharged from the common canal of the urethra, which evacuated the serum separated by the kidneys into that *cystis*, and this, to speak truth, was only the extremity of the rectum a little dilated.

"It is very probable by the description of these organs that if this child had lived to be adult, it would have been incapable of generation, from the mixture of the seed with the ster- coral and urinary excrements. Besides, both these excrements would have had an involuntary exit." (*Opus citatum, Observation, XCIV.*)

The following cases all belong to this the sixth species, and should be so classed. Their history and description, for obvious reasons, will be given in the chapter on *Abdominal Artificial Anus*.—[Vide Chapter XI.]

CASES CCLVII—CCLIIX—CCLXII—CCLXXXV
—CCLXXIX—CCLXXXIII.

CHAPTER VIII.

THE SEVENTH SPECIES OF MALFORMATION.

S E C T I O N I.

DESCRIPTION.

IN this singular species of malformation, the rectum, together with the anus, is usually normal, but either the ureters, the vagina or the uterus, may terminate in it, by an abnormal orifice, and the urine and the menstrual fluid be discharged by this unnatural route.

In these instances there often exist other malformations at the same time—such as the absence of the bladder, the absence of the urethra in the female.

Fortunately cases of this deplorable infirmity are comparatively rare.

When the ureters terminate in the rectum, they generally enter at a short distance below the line of reflection of the peritonæum. (Oberteufer. *Neues Archiv. de Stark, tome II.*)

When the vagina terminates in the rectum, the urethra usually occupies its natural position, and the menstrual evacuation passes out by the anus. What is very remarkable in such cases, is the fact that through the anal orifice impregnation has been known to have taken place, and that even parturition has been safely effected by more or less laceration, however, of the perinæum. Barbout says that he delivered two women per rectum. Professor Rossi mentions a singular case. [Vide Cases CCXII—CCXIII—CCXVIII.] M. Louis also mentions a highly interesting instance of the same

character. [Vide Case CCXIV.] This famous case of M. Louis was made the subject of his celebrated thesis, in which he established the fact, not only of the possibility of conception, but also of a successful accouchement in such cases : (De partu in externarum generationi inservientium in mulieribus, naturali, vitiosâ, et morbosâ dispositione. *Theses Anatomicæ Chirurgicæ, Paris: 1753.*)

This thesis of M. Louis was delivered to the schools of surgery over which he presided, and caused him to be prosecuted by the Parliament of Paris; and the Doctors of the Sorbonne interdicted him, for addressing to the casuists the following question :—“*In uxore, sic disposita, uti fas sit; vel non? Judicent theologi morales?*” [Let moral theologians judge, whether in a wife thus formed, the action was lawful or not.]

The Pope, however, being much more philosophic than the Parliament or the Sorbonne, gave M. Louis absolution, and his thesis was published in 1754.

The uterus also has been known to terminate in the rectum. Vallesnieri describes such a case. [Vide Case CCXXI.]

In such a case as Vallesnieri mentions, as in those already named, *coitus per anum*, would doubtless also, be followed by conception.

This species of congenital malformation does not necessarily result in early death, as we perceive from the cases reported, yet the unfortunate victims of any one of its varieties, are rendered deplorably miserable for life.

SECTION II.

THE TREATMENT.

The powers of nature and of art combined, seem altogether inadequate to remedy so serious a defect, as is presented by

some, if not all the cases of this species of congenital malformation. Although surgery may be out of the question in these cases, nevertheless, they are still highly interesting in a physiologico-pathological point of view.

S E C T I O N I I I .

CASES AND REMARKS.

(1.) Cases in which the Ureters Terminated in the Rectum.

CASES CCV.—CCVI.—CCVII.—CCVIII.—CCIX.—Camper mentions five cases in which the ureters terminated in the rectum, the bladder being absent in each; one of which was that of a female. (*Mémoires sur les Sujets proposés pour les Prix de l'Académie de Chirurgie.* tome V. p. 9. Paris: 1775.)

CASE CCX.—Klein speaks of a case in which the ureters terminated in the rectum. (*Rachit congenit. Nova Acta Académie Naturæ Curiosum.* Ann. I. Observ. 38.)

CASE CCXI.—Richardson relates the case of a Yorkshire boy seventeen years old, in whom the ureters terminated in the rectum, and who never voided his urine but by the anus. Doubtless, in this case, the bladder was wanting. The continued passage of the urine through the anus, gave rise to much irritation and diarrhoea, which did not, however, impair his general health. (*Philosophical Transactions of the Royal Society of London.* Vol. VII.)

(2) Cases in which the Vagina Terminated in the Rectum.

CASES CCXII.—CCXIII.—Barboult mentions two instances of delivery by the rectum, which occurred in his practice between the years 1739 and 1775. In both cases the catamenia flowed by the anus, there being no vulva. In one of these the mother of the woman contended that her daughter could not become pregnant, because the lochia was passed by the anus. In one case the perinæum was torn; in the other it was cut with a bistoury. (*Suite du Cours d'Accouchemens.* tome II. p. 59. Paris: 1775.)

CASE CCXIV.—M. Louis relates the following highly interesting case of a young lady who had a congenital imperforation of the external organs of generation. This girl menstruated per anum. She was solicited in marriage by a young man to whom she was much attached. After much resistance she confessed to him the secret. In the height of his passion, he besought her to allow him to unite in the only way which was practicable. She consented to everything, and became pregnant. The delivery of an infant took place at the proper time, causing a laceration of the sphincter ani. (*Théses Anatomicae Chirurgicae. Paris: 1753.*)

CASE CCXV.—Portal speaks of a girl, who having no vulva, the vagina opened into the rectum, through which medium she passed her catamenia. She became pregnant, and at the moment of delivery, the perinæum became so distended that it was ruptured. (*Précis de Chirurgie Pratique. tome II. p. 745. Paris: 1768.*)

CASE CCXVI.—Engel mentions a case of a woman who having no vulva, the vagina opened into the rectum. (*Dissertatio de Útero deficiente. apud. Schlegel. tome I. p. 259.*)

CASE CCXVII.—M. Orfila mentions a similar case to that of Engel. (*Médecine Légale. tome I. p. 150. Paris: 1821.*)

CASE CCXVIII.—Professor Rossi has recorded a curious case of a woman in whom there was complete absence of the vulva, yet notwithstanding, pregnancy and natural delivery took place. This woman was married, but as the malformation of the genital organs was known, it was not suspected that pregnancy could have occurred, and consequently, that the pains she felt at the approach of labor, were supposed by her friends to be arising from an attack of colic.

Upon examination, it was ascertained that there was *no trace* of the external organs of generation. The pubis was void of hair. It was thought that the pains might result from retention of the menses. M. Rossi examined the rectum, and determined on making an incision of three fingers' breadth in length in the natural direction of the vulva and vagina. He was much astonished at feeling with his finger, which he introduced into the wound, the membranous sac containing the waters laying over the opening of the neck of the uterus. The membranes ruptured after frequent and violent pains. The head of the foetus presented, and the labor was completed by the natural efforts. The child lived six hours.—The incis-

ion which had been made in the direction of the vagina was kept open by means of a tube which was distended with air after its introduction, so that in future the canal might be of sufficient dimensions to receive the penis. That this intention was accomplished, is proved from the fact of the woman having become pregnant a second time, and in two years afterwards she was delivered by this new passage. The information which was gained from her husband led to a more careful examination of the rectum, and an orifice was found within the anus, which would only admit a small probe. This orifice communicated with the artificial canal which had been made by the surgeon, and was no doubt the channel by which impregnation had been effected.

The reflections which were suggested to M. Rossi upon considering this case, are not devoid of interest. Such was the malformation of the parts, that the os uteri had no other external communication but by the small hole within the anus. This aperture was so small that it would not have been seen, had the parts not been very carefully examined. It did not pass in the direction of the opening of the cervix uteri, but formed an angle with that part. It is difficult, therefore, to conceive that the male semen could possibly have penetrated the uterus. He therefore imagines that "*in quodam spiritu, quādam aurā, excujus præsentia organorum genitalium mulierum vis peculiaris modo absorbens excitatur.*" (*Histoire de la Société de Médecine de Montpellier, tome I, p. 39.*)

CASES CCXIX—CCXX.—A case of absence of the vulva, with the vagina terminating in the rectum, is recorded in the "*Mémoires de Berlin,*" for the year 1774. A similar case in every respect is found recorded in the "*Journal des Savants,*" for the year 1777.

(3.) *Case in which the Uterus Terminated in the Rectum.*

CASE CCXXI.—Vallesnieri dissected a female in whom were found two uteri; the orifice of one opened into the vagina, whilst that of the other into the rectum. M. Fournier says, in relation to this case, that there is no doubt but that *coitus per anum* would have been followed by conception. He founds this opinion upon the case related by M. Louis. (*Dictionnaire des Sciences Médicales de Paris, tome IV.*)

CHAPTER IX.

THE EIGHTH SPECIES OF MALFORMATION.

S E C T I O N I.

DESCRIPTION.

THIS species of congenital malformation is characterized by the entire absence of the rectum, or by the complete obliteration of its whole cavity, and constitutes one of the most serious vices of conformation, pertaining to these parts, infallibly leading to death in a few days unless the patient is relieved by surgery. In these instances the colon generally ends in a cul-de-sac, and either floats unattached in the abdominal cavity, is suspended in the pelvic cavity, or fastened down to the top of the sacrum. The absent rectum, in case of complete obliteration, which occasionally though rarely occurs, is represented by a fibro-ligamentous cord attached to the blind end of the colon, and sometimes passing down along the sacrum and becoming blended with the cellular tissue behind the prostate gland and the neck of the bladder. The pelvis in these cases is sometimes abnormally small and contracted, and there is generally no sign whatever of a normal anus present, yet occasionally a preternatural anus does exist.

This is comparatively a very rare deformity, being by no means as common as that in which a portion only of the rectum is wanting. Some authors, however, confound these cases; they arrange under the head, *absence of the rectum*, cases in which there is only a partial absence of the rectum,

thus making no distinction whether the rectum is partially or wholly wanting.

This species of malformation is usually attended by some other deformity, especially by a contraction of the pelvis. MM. Martin, L'Eveille, and Meckel report such cases. [*Vide Cases CCXXXVII—CCXXXVIII—CCXXXIX.*]

These authors have made the important observation, that in cases in which the rectum is wholly wanting, the pelvis is usually very narrow, and that the nates approximate closely to each other. This is doubtless the result of an early arrest of development of the pelvis in its evolution.

As there is no positive or pathognomonic sign by which the absence of the rectum may certainly be known, we can only establish our diagnosis in the usual manner, by a thorough exploration, as advised in the fourth chapter, and by searching for, and endeavoring to reach the rectum through the perinæum with the knife. Should we fail thus to find it, we conclude that it does not exist. Some surgeons in these cases, recommend making an exploratory puncture over the normal position of the anus; when the rectum or some portion of it is present, there will be a flow of meconium follow the withdrawal of the instrument; when the rectum is absent, no issue of meconium will follow the puncture. This proceeding, however, is too hazardous and too uncertain, and should never be adopted.

S E C T I O N I I .

THE TREATMENT.

The only treatment that holds out any prospect of success in cases in which the rectum is wholly absent, is the creation of an abdominal artificial anus. [*Vide Chapter on Abdominal Artificial anus.*]

M. Amussat, I think it is, who asks the question—Should the surgeon, in searching for the rectum through the perineum, fail to find it, but find the end of the colon or some other intestine, should he bring this down in the perineal region and form an artificial anus there, in preference to one in the abdomen? I would answer yes—provided the intestine met with, was long enough, had no adhesions, and could be brought down easily without violence being used.

S E C T I O N I I I .

C A S E S A N D R E M A R K S .

CASE CCXXII.—Binninger saw a child who presented no trace of an anus, and the attempt to reach the rectum through the perineum failed. The child died ten days after birth.

At the autopsy it was found that the colon terminated in a cul-de-sac, and was further on, changed into a slender cord. The rectum was completely absent. (*Observ. et Curat. Med. centur. II. Observ. 81, p. 222, Montbelg : 1673. Also, Dictionnaire des Sciences Médicales, tome XXIV. p. 129.*)

CASE CCXXIII.—Bonet records the case of a child in whom no rectum existed. (*Sepulcretum Anatomicum. Sect. XVII.*)

CASE CCXXIV.—Morgagni records the case of a child in whom the entire rectum was “solid like a rope.” (*Opus citatum, Lib. III. Epist. XXXII. Art 3. et 5.*)

CASES CCXXV—CCXXVI.—Ruysch mentions having seen two new-born children, in whom there was no trace whatever either of an anus or a rectum. No operation was performed and death was the result. (*Adversaria Anatomica, decad. 11. c. 10. p. 43.*)

CASE CCXXVII.—Beauregard relates the case of a child in whom the colon terminated in a cul-de-sac and the rectum was wanting. (*Bacher Journal de Medicine, Janvier, 1786. p. 90.*)

CASES CCXXVIII—CCXXIX.—Méry relates the curious circumstance of two male infants (*twins*) whom he saw, and who were destitute of the anus and rectum; and in both of whom the colon terminated at the umbilicus in a nipple-like projection, in the centre of which was an opening a line and a half in diameter, through which the faeces passed. Both cases terminated fatally, no operation having been performed. (*Historie de l'Académie Royale des Sciences, Année 1700.* p. 40.)

CASE CCXXX.—Henkel relates a case in which no rectum existed. (*Mem. Med. Chirug. Ammerkungen,* 11. 1772.)

CASE CCXXXI.—Estero mentions a case in which the rectum was absent. (*Instit. Chirurg. tome 11. Sec. V. cap. 163. No. 1.*)

CASE CCXXXII.—Bonn reports an instance in which there was a complete absence of the rectum. (*Papendorf. Opus citatum.*)

CASE CCXXXIII.—Ludovicus gives an instance of a child in whom no rectum existed. (*Miscellanea curiosa sive ephem. acad natur curiosor. ann. III. decur. I. observ. 257.*)

CASE CCXXXIV.—Huber reports a case in which the rectum was wanting.—(*Acta Physco-Medica. tome VII, Observ. 24. p. 64.*)

CASE CCXXXV.—Matani cites the case of a child in whom the rectum was wanting. (*Orteshi Giornal di Medicini. tome III. p. 250. Padoue.*)

CASE CCXXXVI.—Mr. Jamieson, surgeon in Kelso, relates the following interesting case of imperforate anus, and absence of the rectum.

"Some years ago, Mrs. Hannah, midwife in this town, was called to one Mrs. Stevenson, in Plowland, five miles distant from this place, whom she delivered of twins, the one female, the other male; and discovering in the latter no appearance of an anus, came home, and sent me to see the child, whom I found otherwise sprightly, and seemingly in perfect health, but not the least vestige of an anus to be seen or felt, but equally firm and solid from the coccyx to the scrotum: whereupon I told the grandmother, who only was acquainted therewith by the midwife, that it was preternatural, and that,

though I had twice seen the anus covered by a membrane, which was easily cured, I could not propose to do the like in this; but, if she pleased, I should try to reach the gut by incision, which she, with the mother's consent, fondly agreed to: whereupon I made an incision pretty deep in the most reasonable part, then introduced my little finger into the wound, to find the gut, but in vain.

"I afterwards tried the trocar, which penetrated, but nothing followed but some guts of blood; so was obliged to leave the patient without prospect of further help from me, only desired, that when he died, I might be allowed to open the body, which I did next day.

"Upon opening the child, I saw the rectum entirely wanting, and the colon was a perfect *intestinum cæcum*, suspended loosely in the abdomen, and full of meconium; all the other parts being in a natural state." (*Edinburgh Medical Essays and Observations*, Vol IV., Art. XXXIII, p. 354, 1771.)

CASE CCXXXVII.—Martin de Lyon saw a case in which the rectum was entirely wanting. In this instance the tuberosities of the ischia approached so near each other, that the pelvis was almost closed. (*Mémoires de la Société de Santé de Lyon*, tome I, p. 185.)

CASE CCXXXVIII.—Meekel reports a case in which the rectum was absent, and the pelvis quite small and contracted. (*Reil's Archiv für die Physiologie*, Band IX., Heft I.)

CASE CCXXXIX.—M. Leveille reports the case of a child in whom the rectum was entirely wanting, and the pelvis so small and contracted that it presented quite a deformity. (Desault, *Journal de Chirurgie*, tome IV., sur l'imperforation d'anus.)

CASE CCXL.—Giering mentions an instance of a child in whom no rectum existed. (*Sel Med. Francof.* tome IV., p. 137.)

CASE CCXLI.—Fitteau reports the case of an infant in whom the rectum was entirely absent. (Sedillot, *Recueil Periodique*. tome II., p. 101.)

CASE CCXLII.—Carvenon cites the case of a child in whom the rectum was wanting. (Sedillot, *Recueil Periodique*. tome II., p. 36.)

CASE CCXLIII.—Oosterdyke reports the case of an infant in whom no rectum existed. (*Papendorf. Opus citatum.*)

CASE CCXLIV.—Fleischmann reports the case of a male child in whom both the anus and the rectum were wanting, and the colon terminated in a cul-de-sac and hung loosely in the abdominal cavity. [*Vide Plate XIII, Figure 1.*] (*De Vitiis Congenitis Circa Thoracem et Abdomen. Tab. IV. Enlargæ 1810. 4to.*)

CASE CCXLV.—Otto cites the case of an infant in whom the rectum was absent. (*Pathologische Anatomie. Breslau: 1813.*)

CASE CCXLVI.—Dr. Palmer dissected the body of a child in whom the colon, after reaching the vicinity of the left kidney, began, as it descended, to form a sigmoid flexure, but previously to its arrival at the concavity of the left ilium, made a sudden turn to the right, and crossing the psoas muscle, reached the projection of the sacrum, where it terminated without at all entering the pelvis. With this malformation was combined an imperforate meatus urinarius and other considerable deviations of the genital organs from their natural structure. (*Medico-Chirurgical Journal. Vol. I. London: 1816.*)

The case of Dr. Palmer was that of a female child who lived four days, and upon whom the operation for imperforate anus had been performed without success.

CASE CCXLVII.—M. Jacquemin witnessed the following case of this species of malformation:

"Several years since, an infant was brought to the consultation of M. Dupuytren, at the Hotel Dieu, who had not yet passed meconium. A bistoury was introduced about an inch without giving issue to any faecal matter. The parents refusing permission to make any further attempt, the child shortly died. At the autopsy it was discovered that there was an entire absence of the rectum." (*Revue Médicale de Paris. Mai, 1835. p. 286.*)

CASE CCXLVIII.—Mr. West says that Mr. Arnott communicated a case to him in which the child lived seven weeks and three days, the rectum being entirely absent and the colon terminating in a blind sac, and floating loosely in the

abdominal cavity. (*Lectures on the Diseases of Infancy and Childhood*, p. 376. *Philadelphia* : 1854.)

The following case belongs to this the eighth species, and should be so classed. Its history and description will be given in the chapter on *Abdominal Artificial Anus*:

CASE CCLXXII.

CHAPTER X.

THE NINTH SPECIES OF MALFORMATION.

S E C T I O N I.

DESCRIPTION.

IN this species of malformation the rectum and the colon are both absent, and generally some other portion of the intestinal canal terminates externally in a preternatural anus, at some extraordinary part of the body—such as at the umbilicus, left iliac fossa, the lower part of the abdomen just above the symphysis pubis, below the scapula, and at the side of the face, as it has been known to have occupied each of these situations. No normal anus ever exists.

Writers generally in describing these cases remark that it is the rectum which terminates externally in an abnormal anus, at these distant and unusual situations of the body. This is, however, a great mistake, for in these instances the rectum and the colon are absent; indeed, the rectum when present has never been known to have terminated at any of these extraordinary points of the body. I have already shown, in the sixth chapter, the various abnormal situations at which the rectum has been known to have terminated externally in a preternatural anus.

This species of malformation is but seldom met with, and is usually attended by other aberrations of structure. The preternatural anus or faecal fistula which generally attends it, is a most disgusting infirmity, and unfortunately one, which in the majority of cases, can be but little, if any, benefited by a surgical operation. It does not, however, always necessarily at once

prove mortal, as would be the case if no opening at all existed, but on the contrary the miserable patients have been known to have lived for months and for years. Happily such cases are not common.

Sometimes this malformation is not accompanied by an abnormal anus, and then it is truly formidable, there being no rectum, no colon, and no outlet whatever for the passage of the excrementitious matters.

By a proper exploration, the existence or non-existence of the colon, can be very easily ascertained, and the diagnosis established accordingly.

S E C T I O N I I .

THE TREATMENT.

When the absence of the rectum and the colon is not accompanied by a preternatural anus, the case, as before observed, is desperate, and demands immediate treatment. Nothing but the formation of an abdominal artificial anus, either in the cæcum, or in the ileum, holds out any hope of saving the life of the patient.

M. Voisin, in a case in which the rectum and colon were absent, but which was accompanied by an abnormal anus situated in the hypogastrium, established an artificial anus in the abdomen, according to the method of Littré. Instead, however, of opening the colon as he thought, which in this case was absent, he opened the ileum. [*Vide Case CCLX.*]

Should the abnormal anus which usually attends this malformation, or this absence of the rectum and colon, be of sufficient size to admit of an adequate discharge of fæces, it ought not to be interfered with. Should it not be large enough, efforts should be made to enlarge it, either by dilatation or incision. The inconvenience of the infirmity, however, should

always be preferred to an uncertain operation which might be attended with more or less danger, and shonld only be performed in case of the most urgent necessity. As I remarked before, in a large number of these cases, surgery can afford no aid, so far as the preternatural anns is concerned. In all such cases, therefore, as do not admit of a surgical operation, the efforts of the surgeon should be directed to the use of palliative measures for the alleviation of the sufferings of the patient, and for rendering him less offensive to himself and others. This may often be accomplished by various mechanical contrivances.

S E C T I O N I I I .

CASES AND REMARKS.

CASE CCXLIX.—M. Littré records the case of a child in whom both the rectum and the colon were absent. In this instance the ileum opened into a fleshy pocket the size of a hen's egg. From the inferior extremity of this pocket was a canal three lines long and two thick, which terminated in a circular opening a line and a half in diameter, situated just above the symphysis pubis. This abnormal opening served the child as an anus. This case resulted in death, no operation having been performed. (*Mémoire de l'Académie Royale des Sciences de Paris. Année 1709. p. 9.*)

CASE CCL.—M. Petit reported to the Academy of Science, the history, in the case of a child who had neither a rectnm nor a colon, and only a portion of the cæcum. In this case the extremity of the ileum terminated at the left side of the *bas-ventre* in an abnormal anus. (*Mémoire de l'Académie Royale des Sciences de Paris. Année 1716. p. 89.*)

CASE CCLI.—An extraordinary case is related by Bils, in which the intestine ascended from the pelvis, through the chest, into the neck, and opened on the face by a very small orifice. (*Specimina Anatomica et Varia Opuscula, p. 10. Roterd: 1661. 4to.*)

CASE CCLII.—Dr. Bushe says that Dinmore mentions a remarkable instance of an infant in whom the inferior portion of the abdomen was badly developed. In this case some portion of the intestinal canal turned upward and opened under the border of the right scapula. (*Malformations, Injuries and Diseases of the Rectum and Anus*, p. 46. New York: 1837.)

CASE CCLIII.—Professor Samuel D. Gross, of the Jefferson Medical College, dissected a foetus in which both the rectum and the colon were wanting; the ileum terminating in a capacious cul-de-sac two inches and a half in length, and floating loosely in the abdominal cavity. (*Pathological Anatomy*, p. 628. Philadelphia: 1845.)

CASE CCLIV.—The following case of imperforate anus, with absence of the rectum and colon, is given by Dr. Lohmann:

"The author was called to a child who had been born five days, and who up to that time had passed nothing from its bowels. It was a boy of mature but weak development. From the account of the mother, vomiting of a thickish green fluid had occurred several times. The raphé of the scrotum was continued to the point of the *os coccygis*, and in its centre, in the place where the anal opening is usually found, were two strong folds of skin united together. The abdomen was distended, and hard, like a drum, and the windings of the small intestines were visible below the skin. A puncture an inch deep was made between the folds with a lance, and kept open with sharpie; the following day a trocar was introduced, to the depth of two inches. It seemed, by the sensation communicated, that the instrument had been pushed into an empty space. No faeces came away, and the child died on the day after, the seventh from birth.

On opening the body, the small intestines were found distended with gas, and in many places filled with meconium, and with yellowish-colored faeces. The colon and rectum were altogether absent. The ileum went to the place where the colon should have commenced, and there terminated in a blind sac, distended with meconium. There was no communication between the sac and the neck of the bladder. The puncture had perforated the cavity of the abdomen, without reaching the blind sac described. (*Medizinische Vercins Zeitung*. Berlin: 1845. No. 8.)

The following case belongs to this, the ninth species, and

should be so classed. Its history and description will be given in the chapter on *Abdominal Artificial Anus*:

CASE CCLX.

S E C T I O N I V.

RECAPITULATION.

The following table will exhibit at one view the whole number of cases of congenital malformation of the rectum and anus, collected from various sources which are reported in this work. It will give the number of each species; the number treated or operated on, and the result; the number not operated on, and the result; and the number of those cases in which neither the treatment nor the result are reported. It will be seen that it comprises by far the largest number of cases ever before published in a single work.

T A B L E.

SPECIES.	NUMBER OF CASES.	NUMBER OPERATED ON.	RESULT.		NUMBER NOT OPERATED ON.	RESULT.		NEITHER TREATMENT NOR RESULT RECORDED.	TOTAL NUMBER.
			RECOVERED.	DIED.		RECOVERED.	DIED.		
First Species,.....	12	10	8	2	1	...	...	1	12
Second Species,.....	16	14	8	6	12	...	...	...	16
Third Species,.....	53	49	23	26	1	...	...	3	53
Fourth Species,.....	45	36	20	16	8	...	8	1	45
Fifth Species,.....	25	14	13	1	1	1	...	10	25
Sixth Species,.....	85	27	15	12	22	11	11	36	85
Seventh Species,.....	17	...	...	...	...	...	...	17	17
Eighth Species,.....	28	5	5	6	...	...	6	17	28
Ninth Species,.....	6	1	1	1	...	...	1	4	6
	237	156	87	69	42	12	30	89	287

CHAPTER XI.

ABDOMINAL ARTIFICIAL ANUS.

SECTION I.

GENERAL REMARKS.

THE term *artificial anus*, from having been indiscriminately extended or applied to the *preternatural*, the *accidental*, or *abnormal anus*, has occasioned more or less confusion among surgical authors. This term is strictly applicable only to such an anus, as is designedly established by the surgeon.

The first, or rude idea of the formation of an artificial anus, was doubtless the result of suggestions occasioned by having witnessed and contemplated the accidental or preternatural anus; the difference, however, between the two, compared as an affliction, is very considerable, the latter being a mere faecal fistula, located in the small intestine, is a most disgusting and revolting infirmity, whereas the former, approaching so much nearer the normal anus in character, is far less offensive, and consequently quite easy to tolerate.

Two operations have been devised and proposed by surgeons for establishing an abdominal artificial anus, for the relief of insurmountable obstruction of the inferior extremity of the intestinal canal. The principles upon which these operations are conducted vary considerably, according to the different localities in which they are practised. It is therefore necessary to consider them separately and distinctly, as performed either in the iliac or the lumbar region, which I will presently do. [Vide Plate XV. Figs. 1, 2.]

The operation for abdominal artificial anus should by no means be undertaken until the surgeon shall have first failed to recognize the end of the rectum through the perinæum, and after having exhausted all the measures for discovering it which are recommended for this purpose. Then, and not till then, should he consider the propriety and the necessity of forming an abdominal artificial anus, which at best, is a poor substitute for a perinæal artificial one.

Some very able and distinguished surgeons, however, have endeavored by very plausible reasoning, to establish the converse of this proposition, namely, the formation at once of the abdominal anus, without making the attempt first, to form the perinæal one ; and that this is at present the practice, to a considerable extent, in some parts of Europe. M. Aimussat has of late recommended that in all cases, in which a distinct fluctuation cannot be detected, through the integument of the perinæum, an artificial anus should at once be formed in the left lumbar region, as being a safer proceeding than the attempt to open the rectum from the perinæal region.

Tüngel, one of the latest, and a most able writer on this subject, says that—"The operation for abdominal artificial anus should be employed for all forms of imperforate anus ; it being manifestly the most rational, and with a certain limit may always be employed ; for we cannot decide beforehand whether we shall succeed in finding the rectum, or in drawing it down to the skin of the perinæum, when it is found." (*Über Künstliche Afterbildung.* S. 203. *Keil :* 1853.)

The fact of our being sometimes unable to decide at first, as to whether we shall succeed or not in finding the end of the rectum, is a very weak argument against the formation of a perinæal artificial anus, and no argument whatever in favor of an abdominal artificial one. Our not knowing exactly whether we shall find the rectum, is no reason why we should not search for it, and endeavor to find it, and when found, try to bring down the end of it, and form an anus in its

normal situation ; failing in this, it is still time enough to establish the anus in the abdomen. Again, Tüngel remarks that—" We must not forget that although the artificial anus in the perinæum has its seat near the natural one, it nevertheless causes inconveniences equally as great as the artificial anus made elsewhere ; the liquid faeces are constantly escaping, whilst those which are solid are voided with difficulty. The cases in which defecation occurs voluntarily, notwithstanding the absence of the sphincter and the levator ani, can only be explained by the fact, that the contraction of the artificial anus opposes an obstacle to the passage of the faeces, to be overcome only by the pressure of the abdominal muscles ; thus the influence of the will is possible in the act of defecation. But as a compensation for this phenomena of voluntary evacuation, the patient endures a still greater suffering resulting from difficult and incomplete evacuation, which may result fatally ; whilst the artificial anus in the abdomen, enables us to prevent or combat the contraction, and by proper bandages to hinder the constant and involuntary evacuation of faecal matter ; and even when this is impossible, this unfortunate condition of the patient by no means endangers life. The presence of the sphincter in some cases of imperforate anus seems incontestible, but it is rare, and still more rare are cases in which it has been possible to preserve the sphincter in the operation, as was done by MM. Roux and Goyrand. Apart from these rare instances, the artificial anus in the perinæum ought not to be regarded as much more advantageous than one in the abdomen."

(*Loco citato.*)

The opinion of Tüngel that the perinæal artificial anus has no preference over the abdominal one, except merely that of being located in its natural situation, is the very best reason that could be given why it should not always be preferred to the abdominal artificial anus ; for as it regards constipation, it is by no means a matter of indifference whether

the contents of the intestines pass by the rectum and perineal anus, or reach only the opening at the sigmoid flexure of the colon. The suppositions of Tüngel with regard to the perineal artificial anus causing as much inconvenience as one in any other situation, and the other various difficulties and troubles which he enumerates, are certainly not in accordance with facts, as any one can convince himself by carefully examining the numerous cases successfully treated, and which will be found reported in this work. He has certainly forgotten to recall to mind the many dangers and difficulties which accompany the formation of an anus in the abdomen. In the abdomen no dilator and constrictor muscles ever exist, and the faecal matter cannot be retained except by a compress and bandage; unless by the lucky prolapsus of a fold of the intestine taking place across the aperture, filling it up and acting as a valve, and thus preventing the efflux of the faeces, as occurred at the artificial opening in the stomach of the celebrated Alexis Saint-Martin.

These authors have entirely failed to prove that the abdominal artificial anus has any preference whatever over the perineal artificial one, or that it is in any respect a good substitute for it.

Some very able surgeons denounce the operation, and contend that no practitioner is ever justifiable in performing it. This is the other extreme.

Professor Bigelow, of Boston, whom we have already noticed, thinks it unnecessary to discuss the question of "*ekeing out the life of a new-born baby by an artificial anus in the groin or back.*" (*Boston Medical and Surgical Journal. Vol. LVII. p. 512. Boston: 1858.*)

I would observe that Dr. Bigelow is by no means alone in his views of the impropriety of performing colotomy in the case of new-born children. The very distinguished Professor of Surgery, Dr. Gross, of the Jefferson Medical College of Philadelphia, says in relation to this operation (*colotomy*)—

"We are struck with astonishment that any one possessed of the proper feelings of humanity, should seriously advocate a procedure so fraught with danger and followed, if successful, by such disgusting consequences. I cannot, I must confess, appreciate the benevolence which prompts a surgeon to form an artificial outlet, for the discharge of the fæces, in a case of imperforate anus, in a child in whom the rectum is either completely absent, or terminates blindly several inches above its normal situation ; or in a case of scirrhous of the bowel in an adult, in whom, from the very nature of the disease, life cannot possibly be prolonged beyond a few brief weeks or months at farthest. Let the surgeon, if he be a parent, ask himself the question, whether he would not rather see his child die without an attempt at relief, than to place it in a condition that would only render it an object of disgust to itself, and of loathing to every one around ; or if he be a husband, whether it would not be more in consonance with the dictates of humanity to abandon his wife to her fate, than to undertake to eke out for her a miserable existence by such a pitiful and revolting expedient ? I have performed the operation but once, and I am sure nothing could ever induce me to attempt it again. While it is impossible, I conceive, to bestow too much praise upon those who first conceived and executed the design of affording aid to this unfortunate class of sufferers ; it is evident from the statistics which have been published upon the subject, and to which special reference will be made by and by, that the operation is founded upon a misdirected sympathy, and that it ought to be discarded as among obsolete devices of surgery." (*A System of Surgery. Vol. II. Chap. XIII. p. 765. Philadelphia : 1859.*)

M. Fourcart, in alluding to the lumbar artificial anus according to the method of Callisen, says—"I will repeat, that in my opinion, the surgeon has no right to impose this operation upon a child, and should not do so, unless

forced by the formal demand of the parents." (*Gazette des Hopitaux de Paris. No. LXX. Juin 16, 1835. p. 280.*)

I should think that no prudent, or intelligent surgeon, even if he had the right, would, under any circumstance, impose upon the child any operation, especially one in which he had no confidence; and no sensible parents would ever make such a demand; if they did, I trust, for the honor of the profession, that no surgeon would be found to comply with it. The duty of the surgeon is one thing, that of the parents altogether another.

On one occasion the able and distinguished M. Paul Dubois, at present accoucheur to the Empress Eugénie, was called in consultation with M. Fourcart to see a child having an imperforate anus. In consequence of the difficulties attending this case, the formation of an abdominal artificial anus after the method of Callisen, was spoken of; when M. Dubois remarked, that if it were the case of his own child, he would not consent to the performance of such an operation. The parents of the child, however, insisted upon it, and these two surgeons were *forced* to yield, and to seek for the colon in the lumbar region. The child, however, died in a few days afterwards.

I will repeat, that when the surgeon has entirely abandoned all hope of making a perineal artificial anus, it is his duty to propose to the parents or friends of the child, to establish an artificial anus in the abdomen; explaining to them, that an anus in so unnatural and inconvenient a situation as the iliac or lumbar region, is indeed a very sad alternative, nevertheless, as it offers the only chance of preserving the life of the child which otherwise must inevitably perish, it should be established. Should the parents, however, in behalf of their child, come to the conclusion, that death would be preferable to life, encumbered with such an infirmity, it would then be entirely left for them to refuse their consent to the operation.

Some surgeons seem to think that the proposition to perform this operation, should always first come from the parents of the child, whereas nothing should come from them but their consent to, or their rejection of it. I would like to understand, what the parents would be likely to know, concerning the necessity or propriety of such an operation, that the proposition to perform it, should come from them. If the operation confers any good whatever, the proposition to perform it should come from the surgeon. If it confers nothing but death, or a miserable life, no surgeon should perform it, even if urged to do so by the parents. Any other course would be undignified and absurd.

In my opinion, in by far the largest number of cases of congenital imperforation of the rectum and anus, *proctoplasty*, in its present improved state, as presented in this work, will doubtless succeed; and in those rare instances in which it is entirely impracticable, the surgeon should not hesitate for a moment to perform the iliac or the lumbar operation. It is true, we observe how eloquently and how earnestly the opposite is maintained, namely, that no surgeon is justified, under any circumstance, in prolonging the life of a child in whom the rectum and anus are imperforate, upon as it is said, the loathsome condition of an abdominal artificial anus. I, on the contrary, however, maintain that such an opinion cannot be justified upon any principle of morality, since an imperative obligation and duty rest upon the surgeon, to employ to the best of his ability, the means placed at his command for the relief of human suffering and the prolongation of human life. The principles of our art, as well as the dictates of humanity itself, command us to avail ourselves of this operation, notwithstanding it has been stigmatized as a "*pitiful and revolting expedient*."

M. Amussat, when speaking on this very subject, says—“An artificial anus in the lumbar region is no doubt a great infirmity, but it is the *sine qua non*—life or death. I have

heard some persons say, ‘I should prefer death to life with such an infirmity?’ I have assured them that they were not in a position to decide; and I have no confidence in these courageous resolutions taken when one is sound in health; for in the cases of the afflicted, to whom this operation has been proposed, if some have refused at first, all have ended by demanding it most earnestly. Talma and Broussais would doubtless have accepted it as a blessing.

“I have already said, and I repeat it, this infirmity is not so great as is generally believed, because it is always compared to that which results from stercoraceous fistulæ of the small intestine. But it is important to observe, that the artificial anus of the large intestine is not to be compared with the accidental anus of the small intestine, which always occurs in gangrened hernia. In this case there is always incontinence of faecal matter, which is almost always liquid. In the artificial lumbar anus of the colon, there is often, constipation, on the contrary, and almost always a difficulty in defecation, rather than too much facility; consequently with cleanliness, and a tent well applied, this infirmity is much more endurable than is commonly thought, since the faeces do not flow involuntarily and constantly, and there is no need of a box or pouch as in case of the accidental anus.

“Notwithstanding all the slurs which are so easily cast upon this sort of infirmity, it may be said to be more endurable than many others, because it is naturally concealed and easily kept secret; it is far better therefore, in view of what I have said, to have an artificial anus, than to have a deformity which forces itself upon the eye, and offends everybody.” (*L'Examinateur Médical de Paris. Année 1843. tome III. p. 234.*)

I am not aware, that any surgeon in the United States, has ever performed the operation for abdominal artificial anus on an imperforate infant. If there is such a case reported, I have not seen the record.

I will here remark, although it may appear out of place,

that should the surgeon fail to form an artificial anus in the perinæum, the abdominal operation should be postponed, provided the condition of the child admitted of delay, until it recovered from the exhaustion, consequent upon pain and loss of blood, so as to enable it the better to endure the second operation. By this delay too, the rectum perchance might in the meantime present itself in the incision in the perinæum, sufficiently low down to be recognized; for its superior portion would be gradually becoming more and more distended with meconium, and constantly impelled downwards by the natural efforts of the child to evacuate its bowels. A case of this character is related by M. Petit [Vide Case LIII.] in which a surgeon failed to find the rectum through the incision which he had made in the perinæal region; but another surgeon three hours after, found the blind end of the rectum distended with meconium, and protruding through the wound. (*Mémoire de l'Académie Royale de Chirurgie de Paris. Année 1781. tome II. p. 237.*)

It is of the greatest importance to the success of the operation for the creation of an abdominal artificial anus, that great care should be taken to protect the cavity of the abdomen against the intrusion of liquids; that the finger should be introduced in the most gentle manner into the abdominal wound in search of the intestine; as it makes a very essential difference, whether the intestine to be opened, protrudes at once in the wound of the abdomen, or whether the finger has to be employed to search for it. It is also of the highest importance that the little patient should be kept warm, and well nursed to sustain it. Immediately after the operation it should be put into a warm emollient bath, and then placed in the arms of its mother in bed, so that the warmth of the mother and the bed should be communicated to it. For the want of these precautions cases are often lost.

SECTION II.

HISTORY OF THE OPERATION.

It is a singular circumstance in the history of the formation of *abdominal artificial anus*, that two surgeons, Littré and Callisen, who never performed the operation on a living subject, and who never, as far as is now known, published any exact method of performing it, should be so universally acknowledged as the authors of the two distinguished and highly important methods of operating now adopted.

I will confine myself to the history of the operation so far only as it relates to cases of congenital malformation. It commences with M. Littré, an eminent French anatomist, and Member of the Royal Academy of Sciences. He was the first individual in modern times, who, in certain cases of congenital malformation of the rectum, suggested the idea of establishing an artificial anus in the abdomen, when in such cases, it was found altogether impossible to re-establish the natural one in the perinæum. This idea appears to have been the result of reflections suggested from having examined *post-mortem* an infant which had died of an imperforation of the rectum, six days after birth. At the autopsy in this instance M. Littré found the rectum normal, both below and above a complete obstruction which divided this intestine into two parts, presenting, as it were, a double cul-de-sac, directly opposite each other. [Vide Case C.]

The main idea of M. Littré seems to have been, to recommend in all future cases of this character, a double operation—that is the opening of the abdomen at some point, and through such wound, the excising of the obstructed portion of the rectum, and the uniting again by suture of its divided portions, and if successful in this, the wound of the abdomen to be healed; failing, however, in this proceeding, then to unite the superior portion of the rectum to the wound in the abdomen, and thus create an abdominal artificial anus. This is dimly shadowed forth in his description of the case alluded to, and in the fol-

lowing language which appears to be all that is said on the subject. “*Il faudrait faire un incision au ventre, et recoudre ensemble les deux parties apres les avoir rouvertes, ou du moins faire venir la partie supérieure de l'intestine, a la plaie du ventre, que l'on ne refermerait jamais, et qui ferait la fonction d'anus.*” (*Histoire de l'Académie Royal des Sciences de Paris. Année 1710. p. 36.*)

There is nothing revealed here, however, with regard to the exact locality of the abdominal anus, or with regard to the manner of performing the operation. Not a word is said about cutting into the cavity of the peritonæum in the left iliac region, opening the sigmoid flexure of the colon, securing the opened intestine in contact with the abdominal wound by means of a thread passed through the mesentery, &c. The idea, however, of an abdominal artificial anus is here clearly enough suggested by M. Littré.

It is singular that not an author, for more than half a century, who wrote on the subject of imperforate anus, commencing from M. Littré himself, ever mentioned the important proposition which this illustrious anatomist had proposed in 1710.

M. Pillore, a distinguished surgeon of Rouen, was really the first individual who acted upon the suggestion of Littré, or upon his own suggestion, from having witnessed several cases of preternatural or accidental anus which had, within a short period previously, come under his own observation. Pillore in 1776, just sixty-six years after the proposition of M. Littré had been published by M. Fontenelle, the Permanent Secretary of the Academy of Sciences, executed in a modified form the operation of Littré, under circumstances, it is true, not contemplated by Littré. The patient of Pillore was an adult, a wine merchant in the vicinity of Rouen, and the operation was performed, not in consequence of a congenital malformation of the rectum, but on account of a complete obstruction to defecation, caused by a scirrhus contraction of the superior part of the rectum, and the inferior portion of the

colon. In this instance Pillore formed the artificial anus in the cæcum which was opened through the peritonæum. The patient survived the operation twenty-eight days, and the immediate cause of his death seems to have been intense inflammation of the jejunum, caused by two pounds of metallic mercury having been administered a month previous to the operation, and which had lodged in, and displaced that portion of the small intestine. (*Actes de la Société de Lyon. Année 1797. p. 189.* Also, Amussat. *Mémoire sur la Possibilité d'établir un Anus artificiel dans le Région lombaire sans pénétrer dans le Péritoine. Paris: 1839.*)

To M. Pillore then, is justly due the merit of having formed the first abdominal artificial anus in a living subject, and with him commenced that series of operations for this purpose which I will presently give, confining myself, however, entirely to those cases in which the operation was performed on account of congenital malformation of the rectum.

M. Dubois was the first surgeon who ever dared to execute the operation of Littré on a living imperforate infant. This he did in 1783, just seventy-three years after the promulgation of Littré's proposition, and seven years after Pillore's operation. [Vide Case CCL V.]

We must now introduce the celebrated Callisen, a highly distinguished surgeon of Copenhagen, who as early at least as 1770, published another method of forming an abdominal artificial anus, intended doubtless as a great improvement on Littré's method, rendering that operation, as was supposed, less dangerous. The operation, which is universally attributed to him, consists in opening the descending colon from the lumbar region without wounding the peritonæum. It is not known with whom this operation originated; Calissen himself does not claim the distinguished honor of first suggesting it. M. Sabatier was the first surgeon who attributed this proposition to Callisen. All Callisen himself says in relation to it, is briefly as follows:—"Si cavum

intestinale cultro vel paracentesio attingi nequeat, vix servari poterit aeger. Quæ proposita sub hoc rerum statu fuit incisio intestini cæci vel coli descendantis, sectione in regione lumbari sinistra ad marginem musculi quadrati lumborum facta, ut anus paretur artificialis, remedium præbet omnio incertum atque hac operatione vix vita miselli servari poterit. Quanguam intestinum in hoc loco facilius attingatur, quam supra regionem inguinalem.” (Systema Chirurgie Hodier næ. tome II. p. 842. Hafniae: 1817.)

We observe, by this language that Callisen intimates that the operation was proposed by some one else, but by whom he does not say. He neither claims it as original with himself, nor does he at all allude to the great distinguishing feature of it—the preservation of the peritonæum. The truth is that very little is known in relation to the early history of this operation, and that little by no means favorable to it.

The peculiar advantages claimed for Callisen's proceeding over that of Littré, are—first, the integrity of the peritonæum—second, the more convenient situation of the artificial anus, and third, the less liability in this situation to prolapsus of the intestine.

M. Sabatier mentions that Callisen himself experienced great difficulty in executing this operation on the dead body, having failed in numerous instances, in consequence of unavoidably opening the peritonæum. He gives an instance in which Callisen attempted this operation on the body of a child which had died of a malformation of the rectum, and failed, by having opened the peritonæum; but in his second effort on the same subject, he barely succeeded, by making his second incision further back, and by introducing his fingers into the first incision, in order to fix the intestine. (*Médecine Opératoire. tome III. p. 337. 2d Edit. Paris: 1824.*)

Callisen's operation was indeed, with but few exceptions, almost universally condemned. Among the numerous sur-

geons who of late years condemned it, and who aided in keeping it consigned to oblivion, I will mention M. le Baron Dupuytren; (*Dictionnaire de Médecine et de Chirurgie Pratiques. tome III. p. 128*) and Mr. Fergusson, who, in relation to this operation, says—"I am inclined to think that a proposal to cut into any portion of the left side of the colon without injuring the peritonæum, either in the young or the old subject, must have been made from a very limited anatomical experience; for from what I have seen, I am positive that not one case in twenty would have admitted of an operation of the nature proposed. I make this statement as to numbers, however, merely at random, not having kept any exact account." (*Edinburgh Medical and Surgical Journal. 1831. p. 366.*) There never were at any time but a few surgeons who were in favor of Callisen's method. M. Allen, who alone as it were in 1780, was of the opinion that it was well worthy of further consideration. (*Recueil Periodique de la Société de Médecine de Paris. tome I. p. 123.*)

This was the estimation in which Callisen's operation was held, when M. Amussat, in 1839, took the first step towards reviving and improving it; whether for the real benefit and advancement of surgery, is a question not yet decided. This step was taken on the first day of October, 1839, by reading and defending, before the Royal Academy of Medicine, a paper which I have already noticed in this work, entitled : " *Mémoire sur la Possibilité d' établir un Anus artificiel dans la Région lombaire sans pénétrer dans le Péritoine.*" This paper was soon followed up by two others on the same subject ; one on the sixth of September, 1841, and the other on the fourth of July, 1842.

This able and distinguished surgeon in the series of masterly papers on this subject, read before the Royal Academy of Sciences, investigates most critically, in highly chaste and beautiful language, the different methods heretofore existing of forming an artificial anus ; gives their history ; points out

their numerous defects; endeavors to establish fixed rules of practice, founded upon accurate anatomical investigations, instead of the vague and uncertain ones existing, and endeavors to substitute improved methods of operating, &c.

M. Amussat was therefore the first surgeon who had the courage and the ingenuity to revive, to modify and to execute Callisen's operation, of opening the left lumbar colon without wounding the peritonæum. If he has no claims to originality of conception in doing this, he certainly can claim the whole merit of reviving, improving and re-introducing an operation which was universally condemned and consigned to oblivion, in consequence of the unavoidable and insurmountable difficulties and dangers which were believed necessarily to attend it in all cases.

S E C T I O N I I I .

THE PROCEEDING OF LITTRÉ.

THE different steps of the method of forming an abdominal artificial anus in the left iliac region, attributed by universal consent to M. Littré, are as follows:

The little patient should be placed on its back on a pillow, with its thighs extended, and supported in this position by one or two assistants. The surgeon being conveniently situated, should make an incision in the left iliac region of from one and a half to two inches in length, between the antero-superior spinous process of the ilium and the pubis, a little above and almost parallel to Poupart's ligament. He should then successively divide the skin, fascia superficialis, aponeurosis of the obliquus externus, the lower fibres of the obliquus internus, and the fascia transversalis; proceeding, however, more cautiously as he approaches the peritonæum, which after being reached and well exposed, should be pinched up and perforated, and then divided with a bis-

toury, on a grooved director, to the same extent as the incision in the integument. The sigmoid flexure of the colon, distended with meconium, usually spontaneously presents itself at the back part of the opening, and may generally be recognized by its livid or its greenish color, by the aspect of its external envelope, and arrangement of its fibres. It may also be distinguished by the resistance of the mesentery which comes from the right side, whilst the resistance of the iliac meso-colon is felt from the left. It sometimes, but rarely ever happens that immediately after the peritonæum is opened, that a portion of small intestine protrudes ; and from its great distention and its dark color, caused by inflammation, might lead to some doubt ; a very slight examination, however, will enable the operator to distinguish it from the sigmoid flexure of the colon. The surgeon should now introduce into the incision the index finger of his left hand and seize the intestine and bring it outwards as far as possible, the finger acting as a hook for this purpose ; whilst with the right hand a large soft ligature should be carried through its mesentery by means of a curved silver needle, in order to retain it in this position. A longitudinal incision should now be made into the intestine, and its contents evacuated. Both ends of the bowel should be well washed out by injecting warm flax-seed tea, or warm milk and water, and the thread in the mesentery should be fastened to the parieties of the abdomen ; after which a tent of lint besmeared with simple cerate should be carefully introduced to prevent adhesion of the lips of the wound, and a fold of linen dipped in cold water, or a warm poultice applied to the lower part of the abdomen. Care should be taken for some time after, that the new anus should not contract too much.

It has been proposed to unite the edges of the intestinal wound to those of the external by four or more points of intercepted suture, and the extremities of the external wound closed by the twisted suture. This would be decidedly pre-

ferable to the other method, and make a much more complete and handsome operation. [*Vide Plate XV. Figs. 3, 4.*]

Should any haemorrhage occur during the early stage of the operation, the bleeding vessels should be immediately tied, to prevent the subsequent stages from being obscured.

S E C T I O N I V.

C A S E S A N D R E M A R K S.

THE following are all the cases, so far as my knowledge extends, in which the operation of M. Littré was executed for congenital malformation of the rectum and anus, and are all the data upon which surgeons are at present proceeding in such cases :

CASE CCLV.—Professor A. Dubois was the first surgeon who in a case of congenital malformation of the rectum and anus, put into execution the operation which M. Littré had proposed so many years previously, namely, the establishment of an iliac artificial anus. In this instance the child was three days old, presenting an imperforation of the anus and rectum, no trace whatever of an anus being visible. M. Dubois performed the operation in December, 1783, but unfortunately the child died ten days afterwards.

At the autopsy it was observed that the edges of the intestinal wound were consolidated with those of the abdominal wound. This appears to be all that is known in relation to this case. (*Recueil Periodique de la Société de Médecine de Paris. tome III. p. 125.* Also, *Dictionnaire de Médecine et de Chirurgie Pratiques. tome III. p. 128.*)

CASE CCLVI.—A male infant thirty-eight hours old was brought to M. Duret, a distinguished naval surgeon at Brest. In this case there was not the slightest trace of an anus visible; no swelling in the anal region took place whilst the child made efforts to defecate. The scrotum was divided into two parts along the median line, having a testicle in each. The glans was in the perineum with its meatus, from which the urine passed freely.

M. Duret made a fruitless attempt to establish an artificial anus in the perineum, and through the incision which he had made, he introduced a sound, but no rectum could be felt. Twenty-four hours afterwards the case was considered desperate, the child's abdomen was distended, its extremities cold, and there was constant vomiting, and every thing indicating that unless soon relieved, it must inevitably perish. Duret, to save the life of the child if possible, determined to establish an artificial anus in the abdomen. But before performing this operation on the living case before him, he practiced Callisen's method on the dead body of a child two weeks old; observing, however, that he wounded the peritonaeum, as the ascending colon was attached to the mesentery, he at once determined to abandon Callisen's and adopt Littré's method on the case in hand. When the child was seventy-two hours old, on a certain day in October, 1793, Duret performed Littré's operation. An incision was made in the abdominal cavity above the iliac region, in the situation where the sigmoid flexure of the colon formed a swelling. This portion of the intestine was drawn out by the finger, and a ligature was passed through the meso-colon to retain it out of the abdomen. An incision was then made into it, an inch and a half long. The meconium escaped in abundance. The vomiting at once ceased, together with all the other alarming symptoms. On the fifth day the sutures uniting the intestine to the abdominal wall were removed. On the sixth day, however, the opening in the intestine an inch in length, was partially closed by the extrusion of the mucous membrane; but on the seventh day the child was well enough to be restored to the care of its parents. Twelve years after this the patient with his iliac artificial anus was doing well. (*Recueil Périodique de la Société de Médecine de Paris.* tome IV. p. 45.)

What is remarkable, this patient, according to M. Amussat, was still living in 1839, having then survived the operation, forty-six years. (*Mémoire sur la Possibilité d'établir un Anus artificiel dans Région lombaire sans pénétrer dans le Péritoine.* Paris: 1839.)

CASE CCLVII.—M. Léveillé reports the following case in the Journal of Desault.

In the month of April, 1794, M. Desault performed the operation of Littré upon a male infant forty-eight hours old. In this child there was no trace of an anus, and the ischia closely approaching each other, seemed to be placed, one upon the other. This eminent surgeon, previous to performing colotomy,

satisfied himself that it would be impossible to establish the artificial anus in the perinæal region. The child died four days after the operation. In this instance Desault made the artificial anus in the sigmoid flexure of the colon.

At the autopsy, meconium was found in the bladder; in the posterior wall of which, and between the mouths of the ureters an opening was seen, about the diameter of a medium sound, leading to the lower end of the intestine which was closed in every direction. What distance this was from the perinæum we are not told. (*Journal de Chirurgie. tome IV. p. 248. Paris: 1794.*)

CASE CCLVIII.—M. Voisin, of Versailles, in 1789 performed the operation of Littré upon a child having an imperforate anus. The result of this case is not known, never having been published. It was doubtless fatal, or it would have been reported. (*Fine's Mémoire de la Société de Médecine de Montpellier. tome VI.*)

CASE CCLIX.—M. Desgranges in 1800 performed colotomy after the method of Littré, in the case of a little girl four years old, in which the rectum opened into the vagina. Eight months after the operation, Desgranges wrote to Fine that he had been perfectly successful, and that his little patient was in good health, but that a part of the faeces still passed by the vaginal anus, and that the artificial anus in the abdomen had to be constantly dilated with a plug to prevent it from completely closing, which it had the strongest disposition to do. (*Voir le second mémoire sur l'enterotomie par Fine, dans le 6^e volume des Annales de la Société de Montpellier.*)

In this instance Desgranges to avoid, as he thought, the difficulties attending the vaginal anus, determined to establish at once the artificial one in the abdomen, instead of in the perinæum, imagining that by this proceeding he could the more easily get rid of the vaginal one, as all the faecal matter would necessarily pass through the abdominal anus; consequently that the vaginal one would soon close voluntarily. In this, however, he was much disappointed, for the faeces continued to pass through the vaginal opening. Indeed his case was anything "but perfectly successful," as he intimated in his letter to Fine. The abdominal anus was entirely useless, and to say the least of it, not any less inconvenient than the vaginal one. It is supposed that the artificial anus in this instance was made in the sigmoid flexure of the colon.

CASE CCLX.—The following singular case of supra-pubic abnormal anus is mentioned by Voisin of Versailles. It occurred in a male child in whom there was an entire absence of the rectum and the colon, the ileum terminating in an abnormal anus in the hypogastrinum.

This child was seen by M. Voisin some time within the year 1802. It had no perineum, the perinaeal raphé terminated in front in two cutaneous folds which seemed to represent the two halves of the scrotum, but as they had no depth, they might have been regarded as the labia majora. Voisin finding no trace of a penis, was at that time at a loss how to decide the sex of the child. The abnormal anus commenced to contract on the seventh day, and on the tenth, symptoms of retention of faecal matter were so evident that Voisin determined to perform Littré's operation. The child survived the operation four days.

At the autopsy it was found that the portion of the intestine drawn towards the outside for the formation of the artificial anus, was not the colon, but the ileum which turned from the artificial anus towards the posterior wall of the bladder, into which it opened with a short dilatation. The vesical opening of the ureters was closed in the form of a figure 7. During the life of the child the urine had been constantly voided by numerous very small openings. The two testicles were found in the abdominal cavity, but both the rectum and the colon were absent. (*Recueil Periodique de la Société de Médecine de Paris. tome XXI. p. 353.*)

This was the second case upon which M. Voisin practiced colotomy after the method of Littré, the first being in 1798. This his last operation, however, cannot be called *colotomy*, as the ileum was the intestine opened, the colon being absent.

CASE CCLXI.—In the case of a male child, two days old, brought to M. Billaut for an imperforate anus, that operator made a puncture in the perineum, at the point where the anus ought to be, but failed to reach the rectum. M. Duret was called in immediately and practiced colotomy according to the method of Littré. The artificial anus in this instance, was made in the sigmoid flexure of the colon. The child only lived four or five days after the operation.

At the autopsy, the closed end of the rectum was found adherent to the posterior wall of the bladder, but having no communication with it, and about one inch from the place where the normal anus should have been.

M. Duret performed this operation in 1809, and it was the second case upon which he practiced Littré's operation, the

first, [*Vide Case CCLVI.*] being in 1793. (*Thése inaugurale de Miriel jeune.*)

CASE CCLXII.—M. Legris, a distinguished surgeon in the navy at Brest, in January, 1813, performed the operation of Littré on a child having an imperforate anus with an abnormal opening of the rectum into the urethra. In this instance it was supposed that the artificial anus was established in the sigmoid flexure of the colon. Death occurred seventeen days afterwards from peritonitis, the result of injury of the parts through the carelessness of the parents. (*Thése inaugurale de Serrand. Montpellier : 1814.*)

CASE CCLXIII.—In 1813 M. Serrand de St. Malo observed in a female child sixty hours old, a well formed anus, but the rectum was found closed one inch and a half above the anal orifice. The solidity of the substance forming the obstruction; the uncertainty whether the superior part of the rectum would be found in the vicinity; the probability that the two parts of the rectum had no communication with each other, and the extreme weakness of the child, decided M. Serrand not to attempt the formation of a perineal anus. He therefore determined to practise colotomy according to the process of Littré. Twenty-two months after this operation the child still lived, but the fourteenth day after the operation it presented a prolapsus of the incised portion of the intestine—"an inconvenience beyond the power of art to remedy." The prolapsus increased more and more, and caused Serrand to fear that the happy result was not of long duration. In this case the artificial anus was made in the sigmoid flexure of the colon. (*Thése inaugurale de Serrand. Montpellier : 1814.*)

CASE CCLXIV.—In 1813, a surgeon of Lyons whose name is not given by Serrand, performed Littré's operation on a child having an imperforate anus. The artificial anus was established in the sigmoid flexure of the colon. The operation proved successful. (*Thése inaugurale de Serrand. Montpellier : 1814.*)

CASE CCLXV.—In 1813 a surgeon of Brest, performed Littré's operation in the case of a female infant having an imperforate anus. In this operation the ovary was included in the ligature passed through the mesentery. The result was death. In this instance the artificial anus was formed in the sigmoid flexure of the colon. (*Thése inaugurale de Serrand.*)

CASE CCLXVI.—Mr. Freer, of Birmingham, England, in 1815, performed Littré's operation on an infant having an imperforate anus. An unsuccessful attempt was first made to establish the artificial anus in the perinæal region. In this case the lower part of the descending colon was opened. After confining the colon with one stitch at each end of the wound, a longitudinal incision two inches in length was made. The child died, however, in three weeks, apparently from marasmus.

At the autopsy, it was observed that the opened intestine was adherent to the wound in the abdominal parietes, and there was not any appearance of inflammation. (*London Medical and Physical Journal*, Vol. XLV. p. 9.)

CASE CCLXVII.—MM. Miriel Senior and Duret, in 1816 saw a female child two days old, having a firm obstruction in the rectum, half an inch above a well formed anus. They at once abandoned the idea of attempting to open out the obstructed canal, because, first it seemed to them a grave operation to push the bistoury into so dangerous a region; second, the occlusion of the rectum seemed to them to be thick, and they apprehended further difficulties, and especially contraction of the new opening. On the next day, M. Miriel practiced colotomy according to the process of Littré, the artificial anus being made in the sigmoid flexure of the colon.

This patient was living, and in excellent health in 1835, consequently being then nineteen years old. (*Thèse inaugurale de Miriel fils. Paris: April 3, 1835.*)

CASE CCLXVIII.—In 1822 M. Miriel Senior, for the second time, performed Littré's operation successfully. The case was that of a male child three days and a half old. In this case, as in that of his first, the anus was found perfect, but the rectum was occluded, one inch and a quarter above the anal orifice. Miriel first made an unsuccessful attempt to open out the rectum at the point of the obstruction. The patient was living thirteen years after the operation. In this case as in the first, the artificial anus was established in the sigmoid flexure of the colon. (*Thèse citée.*)

CASE CCLXIX.—In 1823, M. Miriel Senior saw a male child six days old, in whom the anus was absent, but at the place which the anus should have occupied, there was found a cutaneous excrescence of firm consistency, inclining toward the left side of the perinæal raphé. The urine did not present any mixture with faecal matter. Miriel first attempted

to establish the artificial anus in the anal region, by attacking the perinæum, first with the bistoury, and then with the trocar, but without success. He then performed Littré's operation, and his little patient survived it, two years and three months.

At the autopsy, it was found that the rectum presented the appearance of a funnel, with its brim uppermost, whilst the narrow beak adhered to the left side of the posterior wall of the bladder, terminated in a hard and closed extremity, two inches long, and united to the cutaneous wall of the perinæum.

M. Miriel was of opinion that the death of this child was independent of the artificial anus, but says himself, that at the autopsy he found the colon inflamed. In this case the artificial anus was formed in the sigmoid flexure of the colon. This made the third case upon which M. Miriel, Senior, performed Littré's operation. (*Thèse inaugurale de Miriel fils.*)

CASE CCLXX.—In the case of a child, having an imperforate anus, as described by Läper, (*de vitüs fabrice primitivw, intestini recti et orificiū ani, thèse inaugurale de Wurtzbourg, 1826.*) Textor after having in vain attempted to establish the artificial anus in the perinæum, made it in the abdomen according to the method of Littré. Eight days after this operation the child died.

At the autopsy the blind end of the rectum was found greatly distended with meconium, and projecting far to the front part of the pelvic cavity.

CASE CCLXXI.—Schlagintweit reports the case of a child having an imperforate anus, and in whom there was, in the vicinity of the closed anus, an elevation of the skin in the form of a crest. In this case the rectum adhered to the bladder and terminated in a closed and pointed extremity which rested upon the cocyx. Schlagintweit first attempted to establish the artificial anus in the perinæum, and only abandoned the attempt after having penetrated in vain one inch deep through an incision, extending from right to left, nine lines long. He then established an iliac artificial anus in the sigmoid flexure of the colon according to the method of Littré. (*La Thèse inaugurale de Ottinger sur les Imperforations de l'anus. Munich : 1826.*)

CASE CCLXXII.—M. Bizet, in 1830, saw a male child having an imperforate anus. He made an incision in the périnæum toward the rectum, but failed to reach that organ.

He then performed the operation of Littré, and formed the artificial anus in the sigmoid flexure of the colon. The child died one month after the operation, probably from the effects of indigestion.

At the autopsy it was found that the rectum was completely wanting; and that the inferior extremity of the colon was continued by a fibrous cord attached to the posterior wall of the bladder. (*Thèse inaugurale de Miriel fils.*)

CASE CCLXXXIII.—M. Bizet within the same year (1830,) again performed Littré's operation. The case was that of a child four days old, presenting an imperforate anus. The child died on the day following the operation. M. Bizet in this case, as in his first, made the artificial anus in the sigmoid flexure of the colon. (*Thèse citée.*)

CASE CCLXXXIV.—M. Ouvrard, of Angers, in 1830, performed Littré's operation on a female infant two days old. In this case no anus was visible. It is supposed that the artificial anus was established in the sigmoid flexure of the colon. The child died suddenly. (*Lancette Francaise, tome 11., p. 99. Paris : 1837.*)

CASE CCLXXXV.—On an evening in March, 1835, a male child three days and a half old, was brought to Klewitz at Colberg. This child since its birth had passed nothing from its bowels, the anus being imperforate; its abdomen was greatly distended and painful upon pressure; it was very feeble and jaundiced, nursed but little and passed a great deal of dark colored urine. He at once attempted to form a perinaeal artificial anus, but without success, after having penetrated with the bistoury two inches in depth in the perineum, and then plunging a trocar equally without effect, an inch deeper still. Klewitz then without any surgical assistant and by candle light, established an iliac artificial anus in the sigmoid flexure of the colon, according to the process of Littré, which was successful. The child survived the operation two years and ten months, having died of scrofula.

At the autopsy it was discovered that the rectum passing down to the middle of the pelvic cavity, behind the bladder, presented a dilatation about the size of a pullet's egg, in which was enclosed a clayey concretion: this being removed it was found that the rectum opened into the bladder close behind the internal opening of the urethra. The left kidney and the left ureter were absent. (*Gazette de Berlin. April*

29, 1835. Also, Tüngel. *Über Kunstliche Afterbildung. S. 62. Kiel. 1853.*)

CASE CCLXXVI.—M. Roux in 1839 saw a child in whom there was not the slightest trace of an anus. In this case Roux established an artificial anus in the sigmoid flexure of the colon, after the process of Littré. The child, however, died in two hours after the operation.

At the autopsy they found the cul-de-sac of the rectum distended with meconium, and distant only half an inch from the perineum. (*Gezetté des Hopitaux de Paris. Année 1841. No. 17.*)

CASE CCLXXVII.—Some time within the year 1846, Danzel of Hamburg was called to see a child three days old, which had passed nothing from its bowels since its birth, and which vomited occasionally. Otherwise the child appeared well. Its anus was normal, but in the rectum at the height of the little finger appeared an obstruction which resisted both the finger and a small bougie. On the following day the child vomited meconium, yet with this exception it still did well. In order to overcome the obstruction, and if possible to open a passage for the faeces, Danzel introduced on his finger a sharp-pointed bistoury up to the point of obstruction, and firmly pushed it in the direction of the rectum as high as the promontory of the sacrum. No meconium, however, followed the withdrawal of the instrument. Danzel now determined to establish an abdominal artificial anus in the left iliac region according to the method of Littré. This operation he at once executed, establishing the artificial anus in the sigmoid flexure of the colon; but on the eighth day the child died.

At the autopsy it was found that the rectum and the colon were entirely empty and contracted, and that a complete obstruction existed in the cæcum which together with the small intestines was greatly distended. No evidence whatever of inflammation was discovered. The rectum was not closed as Danzel had imagined, but simply a fold of its lining membrane had arrested the finger and the bougie, and thus deceived him as to the true character of the case. The cause of death was obvious. Had the artificial anus been made in the cæcum, the probability is that the child would have been saved. (*Haser's Archiv. Band. IX. Heft. 3. S. 284.*)

CASE CCLXXVIII.—The following case of imperforate anus and rectum is reported by Walter F. Atlee, M.D., of Philadelphia. The infant was subjected to Littré's opera-

tion by the able and distinguished M. Nélaton, of the Clinical Hospital of the Faculty of Medicine of Paris:

"In April, 1854, a child, new-born, was brought to the hospital, as having no anus, from imperforation of the rectum, or absence of that intestine.

"M. Nélaton established an artificial anus in the left iliac fossa. In performing the operation, the integuments were divided, then the muscles one after the other; the peritoneum, thus exposed, was opened, and the intestine was drawn out by the finger, and fastened to the opening in the abdominal walls by means of a thread. The intestine was then opened, freed of the matters it contained, and the wound dressed by charpie, and a loosely-applied bandage placed around the body. The child, however, died in the afternoon." (*Clinical Lectures on Surgery. By M. Nélaton. From Notes taken by Dr. Atlee. Chap. XIX. p. 588. Philadelphia: 1855.*)

CASE CCLXXIX.—The following case is reported by M. Godard, of Paris, France, as alluded to in CASE CLXXIV., which see.

"Alphonse Eugene was born on the first of April, 1855, and his mother shortly after observed that the child had no anus. On the third of April, when he was two days old, his mother sent him to the Hospital Necker, hall of Saint Cecile, under the direction of Professor Natalis Gmillot. The same day M. Lenoir, especially called into this case, made an incision in the perineum, and then plunged a trocar in the direction of the rectum, hoping to reach and to open its dilated extremity. As he did not succeed by this method, he performed the operation of Littré. The child immediately evacuated the meconium through the wound, and his condition was greatly improved, and continued satisfactory during five days. On the sixth day after the operation he appeared worse, and on the eleventh of April, three days later, he died.

The urine showed a mixture of faecal matter.

The autopsy was made on the twelfth of April, and gave the following results.—The peritoneum investing the pelvic viscera exhibited the most intense inflammation. At the left of the bladder there was a large abscess, which had pushed that organ out of its natural position. The inferior portion of the sigmoid flexure of the colon and the superior portion of the rectum, adhering and united by numerous false membranes, were drawn into the artificial anus, which was situated just above Poupart's ligament. These portions of intes-

tine presented a dark violet hue from which might be inferred great vascularity. The rectum descended from above downward, and from left to right. Behind, it corresponded to the sacrum, being united to it by numerous fibrous adhesions; in front it extended to the bladder, being separated from it by the peritoneal cul-de-sac. On the left, the rectum touched an extended abscess which separated it, like the bladder, from the walls of the pelvic cavity and crowded it entirely out of position. This abscess opened beneath the rectum; it appeared to result from the inflammation of the cellular tissue of the pelvic cavity, and was doubtless the effect of the punctures made with the trocar in that region. On the right side of the rectum there was nothing observed worthily of note. The inferior extremity of the rectum terminated in the form of a sack, situated on a level with, and behind the prostate, about one inch and three eighths from the point of the perineum in which the puncture was made. On the anterior wall of the rectum, this sack presented the orifice of a small canal, three eighths of an inch in length, which passed under the prostate and opened into the urethra in front of the veru montanum. That part of the urethra situated in front of this opening was dilated in bottle form, and of sufficient size to contain a large pea, whilst the vesical end, or that part of the urethra situated behind the abnormal opening, was on the contrary singularly narrow. (*Gazette Médicale de Paris. Année 1855. No. 44. p. 699.*)

S E C T I O N V.

COMPENDIUM.

THE following table will present in a compendious and convenient form for reference, the twenty-five preceding cases reported in this work, in which the operation of M. Littré was performed, in consequence of congenital malformation of the rectum. It will give the number, the operator, the date, the sex, the age, the species of malformation, the situation of the artificial anus, and the result; so far as any or all these facts are known to us.

TABLE.

NUMBER.	OPERATOR.	SEX.	AGE.	DATE.	SPECIES OF MALPOSITION.	SITUATION OF ARTIFICIAL ANUS.	RESULT.	
							Third..	Fourth..
1. Dubois.....	1783	Boy	3 days..	1793	Third..	Sigmoid Flexure Colon	Death 10 days after.	
2. Duret.....	"	Boy	2 ..	"	Sixth..	"	Living 46 years after.	
3. Desanlut.....	1794	Boy	2 ..	"	Third..	"	Death 4 days after.	
4. Voisin	1798	Girl	4 years..	"	Sixth..	"	Unknown.	
5. Desgranges	1800	Girl	10 days..	"	Sigmoid Flexure Colon	"	Living 8 months after.	
6. Voisin	1802	Boy	2 ..	"	Sixth..	"	Death 4 days after.	
7. Duret.....	1809	Boy	2 ..	"	Ninth..	"	Death 4th or 5th day.	
8. Legris	1813	Boy	2 ..	"	Third..	"	Death 17 days after.	
9. Serrand.....	"	Girl	60 hours	"	Sixth..	"	Living 22 months after.	
10. Surgeon of Lyons.....	"	Girl	60 hours	"	Third..	"	Successful.	
11. Surgeon of Brest.....	"	Girl	.....	"	"	"	"
12. Freer	1815	Girl	2 days..	"	"	"	Death.	
13. Muriel	1816	Boy	3½ ..	"	Fourth..	"	Living 3 weeks after.	
14. "	1822	Boy	6 ..	"	"	"	Living 19 years after.	
15. "	1823	Girl	6 ..	"	Third..	"	Living 13 years after.	
16. Textor	1826	.....	.....	"	"	"	Living 2½ years after.	
17. Schlaginhaufen.....	"	.....	.....	"	"	"	Died 8 days after.	
18. Bizet	1830	Boy	.....	"	Eighth..	"	Unknown.	
19. "	"	Boy	4 days..	"	Third..	"	Lived 1 month.	
20. Ourvand	"	Boy	2 ..	"	"	"	Died 24 hours after.	
21. Kiewitz	1835	Boy	3½ days..	"	Sixth..	"	Died suddenly.	
22. Roux	1839	.....	.....	"	"	"	Lived 2 years 10 months.	
23. Danzel.....	1846	.....	.....	"	Third..	"	Died 2 hours after.	
24. Nélaton.....	1854	.....	.....	"	Fourth..	"	Death 8 days after.	
25. Lenoir	1855	Boy	3 days ..	"	Third..	"	Died same day.	
				"	Sixth..	"	Died 9 days after.	

SECTION VI.

THE PROCEEDING OF LITTRÉ, AS MODIFIED BY PILLORE.

THE method of M. Pillore is a modification of that of M. Littré, differing in the intestine opened, and the artificial anus being in the right side. He recommends the anterior part of the cæcum to be opened through the peritonæum, and the lips of the incision in the intestine to be fastened by several points of suture to the margins of the divided integument. [*Vide Plate XV, Figures 5, 6.*]

M. Pillore was induced to select the cæcum for the place of the artificial anus, both on account of its situation, as well as its forming a reservoir, and thus preventing, as he imagined, the constant and involuntary escape of the faeces.

CASE CCLXXX.—The following is an interesting case of the success of M. Pillore's method, and the only one on record, so far as my reading extends, in which the operation was performed on account of congenital malformation of the rectum and anus. I failed to obtain the German Medical Journal in which the case was originally reported, and was compelled to present the brief narrative of it, without names or dates, as I found it in the London Medico-Chirurgical Review. (No. LIII. p. 230. July, 1837.)

"An infant, three days and a half old, was found to have no anal aperture. The raphé of the perinæum extended from the scrotum to the point of the os coccygis, without any interruption.—The child was jaundiced all over; the abdomen was hard and distended, there had been no vomiting, and of course no alvine evacuation. It had taken the breast repeatedly, and had also voided urine several times. An incision was made at the usual place of the anus, and a trocar was introduced for at least an inch or more in the direction of the rectum; but without any effect. It was, therefore, deemed unsafe to penetrate to a greater depth; and a proposal was made to open the cæcum in the right iliac region. This was accordingly done. An incision was made through the integuments immediately in front of the anterior superior spinous process of the os ilii, and when the peritonæum was opened, a portion of small intestine escaped. This was replaced, and the caput

cæci being found, an incision was made into it. Several ounces of a consistent meconial matter immediately flowed out, with great relief to the symptoms. The progress of the case was most satisfactory (der Fortgangswarganzerwünschat); copious alvine evacuations began and continued to escape. On the eighth day after the operation, the stitches of the abdominal wound were removed." (*Medizin Zeitung für Heilkund, in the Preussen.*)

S E C T I O N V I I .

THE PROCEEDING OF CALLISEN.

CALLISEN, in preference to the method of M. Littré, advised the artificial anus to be formed in the left lumbar, instead of the left iliac region, doubtless for the purpose of preserving the integrity of the peritonæum. What is, therefore, generally called Callisen's operation, consists in opening the descending colon in the left lumbar region, without dividing the peritonæum. This distinguished surgeon, in order to accomplish this object, directed a vertical incision to be made between the last false rib and the crest of the ilium, parallel with the external or anterior margin of the quadratus lumborum muscle.

The surgical anatomy of the lumbar region in which the operation of Callisen is to be performed, I will give in the language of M. Malgaigne. "The left lumbar colon," says this able surgeon, "descends at first in front of the loins, from which it is separated by fat only; then in front of the aponeurosis of the transversalis abdominis and quadratus lumborum, from which it is also separated by a thin layer of fatty tissue; below this aponeurosis it reaches the crest of the ilium, below which it is no longer accessible to our instruments. It is then, between the loins and the crest of the ilium that we must seek it. It generally corresponds to the aponeurotic groove between the quadratus lumborum and transversalis, which itself corres-

ponds to the external border of the common mass of the sacro-lumbalis and longissimus dorsi, easily recognized in middling fat subjects. Sometimes it is more internal, and is in great part concealed by the quadratus lumborum. You see that in any case it is on a level with the external edge of the sacro-lumbalis, and more deeply under the external border of the quadratus lumborum, that you are most sure to find it.

The layers to be divided are the skin and fatty subcutaneous tissue; beneath this the latissimus dorsi behind, the obliquus externus in front; more deeply the obliquus internus, and then the transversalis; then the aponeurosis of the transversalis, common also to the quadratus lumborum; then the adipose tissue that covers the intestine; and lastly, the intestine itself. But here we have the most important relations.

Almost always both in the adult and infant, the left colon is deprived of peritonæum in the posterior third of its circumference, and especially when it is distended by gas and faecal matters. But the space in which it is thus outside the serous membrane is very variable; and the more care must be taken not to wound this membrane, because it is here very thin, and almost adherent to the aponeurosis of the transversalis. There is no certain indication of this limit. On the contrary, position alone informs us that we have reached the colon instead of some other part of the intestine covered by the parietal peritonæum. For, of the three longitudinal bands of the colon which might have served us as a guide, one is in front, another on the inside, and a third outside; and it is the space between these two last that we have to open behind. You see then that the operation, to preserve its essential advantage, which is *the integrity of the peritonæum*, demands a great firmness of hand and great precautions." (*Operative Surgery. Britan's translation*, p. 447. *Philadelphia* : 1851.)

SECTION VIII.

CASES AND REMARKS.

The following are all the cases, so far as I know, in which the operation of Callisen was performed for congenital malformation of the anus and rectum.

CASE CCLXXXI.—M. Dupuytren in his “*Lecons Orales*,” very briefly alludes to the case of a male child having an imperforate anus, upon whom in 1818 he performed Callisen’s operation, somewhat modified by himself, and since then greatly modified by M. Amussat. In this instance Dupuytren established the artificial anus in the cæcum without wounding the peritonæum. The result, nevertheless, was death from peritonitis. (*Lecons Orales de Clinique Chirurgicale, tome III, p. 663, 2 Edit.*)

CASE CCLXXXII.—On the eighth of December, 1828, a male child thirteen days old was brought to the office of M. Bougon. It was very small and remarkably thin. This child since its birth had passed no faecal matter by the anus ; it had hiccup and continual vomitings. The skin of the abdomen was bluish at several points ; an attentive examination having discovered no trace of an anus, M. Bougon thought best to plunge a bistoury into the place usually occupied by the anus, in order to assure himself whether the rectum reached within a short distance of that point, and if it might not be possible to re-establish a natural opening thereby. A bistoury with a straight blade was then cautiously pushed to the depth of seven or eight lines ; no liquid flowed, except a little blood ; even the cries of the child produced no sensation of fluctuation which could lead to a presumption that the intestinal cul-de-sac was in the vicinity. M. Bougon then abandoned the attempt to make an artificial anus in the perinæum, and proceeded in search of a portion of the colon to establish an artificial anus in the left lumbar region. For this purpose he made a longitudinal incision in the left side a little more than an inch long, between the last false rib and the crest of the ilium. Having reached the peritonæum, he detached it to a small extent, in order to seize the intestine where it is not covered by the serous membrane, but without success. He then decided to open the peritonæum and seize a portion of the colon as is

ordinarily done. That intestine was then brought to the surface ; it was opened, and a gum-elastic canula was introduced into the cavity which gave vent to gas and a considerable quantity of feculent matter. A thread was used to maintain the foreign body in the intestine.

Shortly after the operation the hiccup and the vomiting ceased ; the little patient was calm during the day and part of the night.

On the ninth of December, about two o'clock, A. M., the child made plaintive cries and vomited a substance resembling coagulated milk. At the period of visit the cries became constant, the hiccup returned from time to time ; the patient sometimes vomited a yellowish liquid which it scarcely had the strength to expel. The countenance became altered since last evening, and already presented a cadaverous look. The condition of the child became more and more serious ; the vomiting more frequent ; little or nothing passed through the canula and death occurred about three o'clock, P. M., twenty-eight hours after the operation.

Post-mortem forty-two hours after death.

On opening the abdomen the small intestines were found in their natural condition. The rectum was in its place ; it descended low down into the pelvis and terminated about one inch from the natural situation of the anus, and the interval which separated the inferior extremity from the point which it ought to have reached, was occupied by a condensed cellular tissue ; all that portion of the intestine which formed the rectum was much distended with liquid yellow matter ; the peritoneal surface had contracted several feeble adhesions to the neighboring intestinal arches ; the mucous membrane was inflamed ; the inferior extremity of the rectum terminated in a cul-de-sac without any trace of an opening. (*Lancette Francaise. tome I. p. 78. Décembre, 1828. Also, Gazette des Hopitaux de Paris. Année 1828. p. 78.*)

In this instance M. Bongon intended to perform the operation of Callisen, but as he not only opened the colon but the cavity of the peritonaeum also, he performed that of Littré—hence it is a question, whether this case should not have been classed with those of Littré.

CASE CCLXXXIII.—The following case is reported by M. Godard, as alluded to in case CLXXIV, which see.

“Julien Francois Leflou was born on the 15th of June, 1855. On the next day M. Grange, being consulted by the mother, found only a slight depression of the skin in the place of the

anus. He made an incision in the perinæum, and then plunged in a trocar, but failed to reach the end of the rectum. On the 18th of June the child was received into the hall Saint Come of the Hospital *des Enfants Malades*. M. Guersant the surgeon of the hospital, next day renewed the attempt to find the rectum, but equally without success. He then formed an abdominal artificial anus after the method of Callisen. Shortly after the operation the child voided the meconium by the wound. On the 21st of June inflammation of the cellular tissue of the pelvic cavity and of the extremities, supervened, and on the 23d, at nine o'clock in the morning, the child died. Up to this period no meconium was passed mixed with the urine.

Autopsy. The peritonæum showed no trace of inflammation. The artificial anus was situated a little below the spleen. The open part of the intestine corresponded to the angle formed by the transverse and descending colon. The rectum at its superior extremity was of normal size, but as it descended into the pelvic cavity, its diameter diminished, and at the upper margin of the prostate, entirely disappeared; however, there was discovered at this point a pipe-like prolongation which passed behind the bladder and penetrated the prostate; making its way thence between the ejaculatory ducts, it reached and penetrated the urethra in an opening covered by a thin membrane. This prolongation extended from the anterior wall of the rectum and was lined with a corrugated mucous membrane. The inferior extremity of the rectum was about one inch and a quarter from the skin of the perinæum, which with the subcutaneous and fatty cellular tissue beneath was five-eighths of an inch in thickness." (*Gazette Médicale de Paris.* No. 44. p. 700.)

S E C T I O N I X.

THE PROCEEDING OF CALLISEN, AS MODIFIED BY AMUSSAT.

THE principle upon which Callisen's operation is founded, as has already been observed, is to establish an artificial anus without wounding the peritonæum, by opening the posterior third of the descending colon in the left lumbar region, at that part of the intestine which is destitute of a serous investment.

The anatomy of the parts concerned is of the utmost importance and must be the first thing to engage our attention. The most important point is the relation which the descending colon bears to the peritonæum in the left lumbar region. In order to study and understand this well, frequent dissections upon the dead body should be made ; and in making these the body should always be opened from *behind*, and not from the *front*, as is ordinarily done. If the dissection is made from behind, the posterior third of the descending colon will be found lying closely against the cellulæ-adipose laminæ, which line the abdominal wall in this situation. It will be observed to be uncovered by peritonæum, and to have no loose or floating meso-colon ; but the serous reflexion will be found to be closely applied to the abdominal wall on each side of the intestine. When, on the contrary, the dissection is made from the front, the colon is always drawn forward, and in doing this, a distinct and somewhat elongated meso-colon is formed which does not normally exist, but is made by the traction of the dissector in tearing off the reflexions of the peritonæum. It is of the greatest importance to observe that the extent of intestine uncovered by peritonæum varies, according as the colon is contracted or distended. When it is empty and contracted, the peritonæal reflexions come into very close apposition, and nearly overlay the naked portion of intestine ; but when this is distended they are pushed aside, as it were, and a broad expanse of colon will be seen to be uncovered by peritonæum. To verify this it is only necessary to inflate the colon if it is empty or contracted. The facility of exposing the uncovered part of the colon, without wounding the peritonæum, will be in the exact ratio of its amount of distension.

M. Amussat attributes the failure of Callisen's operation on the dead body, to the fact that in such cases the intestine is most always empty. Those, therefore, who might wish to practise the operation on the dead subject should always first inflate the intestine. In the cases of congenital malformation, how-

ever, in which this operation is required, this condition of the colon does not obtain, as in such cases, it is universally distended to its utmost capacity by meconium and gas, consequently the layers of the peritonæum, forming its imperfect mesentery, are so separated, as to allow of the intestine being readily reached, without touching the peritonæum.

The first step M. Amussat takes to improve Callisen's operation is to adopt the transverse instead of the vertical incision of the integuments and muscles, the advantages of which he maintains are, first, that it makes the operation easier and more certain, and avoids the danger of dividing the lumbar vessels and nerves; second, that it greatly facilitates the discovery of that portion of the intestine destitute of peritonæum, as well as the opening of it without wounding the peritonæum; and third, that it enables the artificial anus to be established more anteriorly. (*Opus Citatum.*)

M. Amussat besides modifying this operation in various respects, has extended the applicability of it to the ascending colon—hence by his method it may be performed either upon the left or the right side, according to the situation of the deformity or obstruction.

Some authorities maintain that in early life it is by no means unusual to find a kind of lumbar meso-colon, or the colon floating and surrounded by peritonæum, like one of the small intestines; and that under such circumstances the serous membrane would necessarily have to be opened, and the operation would present no advantage over that of M. Littré; consequently they contend that it is not applicable to, nor should be performed on infants, but should be limited to adults alone. M. Amussat on the contrary, however, contends that the disposition of the parts in early life is more favorable for the operation than in adults; first, because the situation of the lumbar colon is more fixed or constant in early life; and second, because the kidney forms an unerring guide to the colon which always lies immediately external to

that organ. He says too, that the intestine seems more firmly adherent to the parietes of the abdomen than in adults. (*Troisième Mémoire, &c. In L'Examinateur Médical de Paris. Année 1843. p. 216, 229.*) In only one dissection out of twenty did M. Amussat find a lumbar meso-colon in the infant, and in that instance the intestine was empty. (*Bulletin de l'Académie Royale de Médecine. 30 Juin, 1842. p. 302.*)

The Operation.—Every thing being made ready, bistouries, forceps, scissors, crochets, tenaculum, sponges, small curved silver needles, ligatures, and small canula, the little patient should be placed upon its abdomen inclining to the right side, with a pillow placed under the abdomen to elevate it. The operator will observe that the region in which the operation is performed, is bounded above by the last false rib; below, by the crest of the ilium; behind, by the lumbar spine; and in front, by an imaginary mesial lateral line. After marking with ink the three bony boundaries of this oblong quadrilateral space, the operator should make a transverse incision of from two to three inches in length, midway between the last false rib and the crest of the ilium, parallel with the crest, commencing at the external margin of the sacro-lumbalis and longissimus dorsi muscles. This incision must be continued down, so as to divide the posterior margin of the three broad muscles of the abdomen, and the anterior portion of the latissimus dorsi and quadratus lumborum. These muscular layers should all be divided, first across, then vertically, to afford a crucial incision, if necessary, and the better to expose the intestine. All the posterior part of the incision, the cellular and adipose tissue which envelops the kidneys and colon, may now be perceived. This tissue should be divided vertically with caution, when the colon will appear between the edges of the incision. The colon thus being recognized and exposed, two threads, one above and one below should be passed through its coats

with a needle, and by it should be drawn to the middle of the external wound, and in the space between the threads, it should be pierced with a trocar, and after some of the meconium and gas has escaped, the opening thus made, should be enlarged by a crucial incision. It is highly important that the intestine should be well drawn forwards before it is punctured, fully on a level with the skin, in order that its contents may not be extravasated into the loose cellular tissue around it. The intestine after being punctured, and the orifice thus made, enlarged by a crucial incision, should now be completely evacuated and washed out by injections of tepid milk and water; after which the margin of the intestinal wound should be fixed by four hare-lip sutures to the lips of the skin in the middle tract of the cutaneous wound, for the purpose of preventing the escape of the faecal matters into the loose cellular tissue of the region of the colon, as before observed. The anterior and posterior angles of the cutaneous incision should also be closed by more or less hare-lip sutures, according to their extent, for the purpose of effecting union by the first intention. [Vide *Plate XVI*, Figures 1, 2, 3.]

The child should now be put to bed and a warm poultice applied. About the fourth or fifth day after the operation, if all goes on well, the sutures may be removed.

M. Amussat executed Callisen's operation as modified by himself, in three instances of imperforate infants. His report of these cases I have presented in full, translated from the original. It will be found highly interesting and still more fully illustrate his method of operating. [Vide *Cases CCLXXXIV—CCLXXXV—CCLXXXVI.*]

This operation requires considerable firmness of hand and great precaution, in order to avoid wounding the serous membrane, the preservation of which is its essential advantage. The most difficult and the most perplexing part of the operation, however, is to recognize the colon. The signs

which M. Amussat gives, whether taken separately or collectively are by no means diagnostic. He says, for instance, that the kidney forms an unerring guide to the colon, yet in operating on his third case, (*CCLXXXVI*) the kidney was actually mistaken for the colon, and the incision made into it disclosed the mistake. He himself admits that, “*Even if the colon is distended there are no sufficient means of identifying it, though it should be perfectly laid bare.*” (*Deuxième Mémoire, &c.*)

The greenish color of the colon, as well as the greater development of its muscular fibres, may aid the operator to recognize it. Pressure and percussion with the fingers, on account of its elastic tumefaction, are excellent means of ascertaining its presence.

M. Baudens, chief surgeon of the Military Hospital of Gros-Caillon, objects to all of M. Amussat’s signs. Should the colon be filled with faeces, says he, it would be hard, and then liable to be confounded with the kidney; should it be pliable and elastic, from being distended with gas, then it could not, by the touch, be discriminated from the small intestines. He recommends, as an infallible means the employment of exploratory acupuncturation. Previous to opening what he supposes to be the colon, he introduces an acupuncture needle, furnished with a canula, and on withdrawing the needle, either gas escapes, or the canula is soiled with faeces, if it has entered the colon. (*Gazette des Hôpitaux de Paris, Année 1842. No. XXVII. p. 179.*)

M. Baudens, however, with a much greater show of reason, objects to the transverse incision proposed by M. Amussat in Callisen’s operation, in consequence of the liability of wounding some of the large branches of the genito-crural and inguino-cutaneous nerves, and also that it exposes too small an extent of the intestine, which should be opened by an incision at least one inch and a half long, as otherwise the anus will contract. He says, that M. Amussat, moreover, is

obliged to make a crucial incision in the deep parts, which perils the lumbar arteries, is painful, and augments the extent of the wound. In order to combine the advantages of a vertical and transverse incision without the disadvantages of either, M. Baudens proposes an oblique incision. (*Opus Citatum.*)

S E C T I O N X.

CASES AND REMARKS.

CASES CCLXXXIV—CCLXXXV—CCLXXXVI.—In the three following cases, M. Amussat performed colotomy after the method of Callisen, as modified by himself.

First Case.—“On the 22nd of January, 1842, M. Hippolite Larrey, sent me a male infant, born on the 20th January at four o'clock, A. M. On the next day after its birth, seeing no discharge of meconium, they discovered that the child was imperforate. They attempted with sounds, and even with trocars to give vent to the meconium, but without success.

In other respects the child was strong and well made, and the anus occupied the usual position. It allowed the introduction of sounds and the fore-finger, but at about one inch deep the progress of the finger or instrument was arrested by an obstruction, beyond which no fluctuation was perceived indicating the presence of a distended rectum.

The urine was slightly affected, but with no mixture of meconium; the abdomen was distended hard and elastic, but without inequalities or depressions; the child was not emaciated, and the yellow tint common to imperforate children was barely perceptible. Notwithstanding the absence of fluctuation above the closure at some distance from the anus, I attempted to go beyond that, profiting by the small opening already made with sounds or trocars. I forced this opening with my finger, and sought to recognise the end of the large intestine: but it was impossible either for myself or my assistants to discern the least fluctuation. For an instant I thought I felt an intestine; but the sensation was vague, and besides I had reached too great a height after rupturing the

cellular tissue of the pelvis with my fore-finger, to dare to affirm that I had to do with an intestine.

Reflecting upon the course to be taken in so embarrassing a case, I proposed to establish an artificial anus in the left lumbar region. This proposition having been discussed and approved, I immedately proceeded to the operation.

The child was placed on its abdomen, a little inclined to the right side, so that the left flank was turned uppermost. Some folded napkins were placed under the right side to render the left flank more prominent. After closely examining the left lumbar region, and measuring the distance from the crest of the ilium to the last false rib, I marked the position of the vertebral column and the resistance and thickness of the tissues of that region. My dimensions being carefully taken, I made a transverse incision about two inches in length, in the middle of the space comprised between the last rib and the crest of the ilium. This first incision comprised only the skin and the cellular tissue. By another incision I divided the thin muscles and came immediately upon the cellular and adipose tissue which characterizes the envelope of the kidney at this age. I cut this envelope and saw the kidney perfectly naked, and filling almost the whole interosseous lumbar space, which was very embarrassing. My first transverse incision not being sufficient, I made another, forming a T with the first. I pushed back the kidney and sought for the colon. After much uncertainty, thinking I recognized it, I determined to seize longitudinally with a tenaculum, from above downwards what I believed to be the colon, and I brought it towards the surface, after again seizing it with another tenaculum which I inserted in an opposite direction and a short distance behind the first. The organ being thus firmly fixed and held, I made an opening between the two tenacula with the scissors. Immediately we perceived a greenish ball, being the meconium covered with a pellicle; as soon as this was ruptured, gas and meconium escaped. I then enlarged the opening a little above and below, and I seized the edges with spring forceps. I then introduced into the intestine a canula through which by means of injections, to dilate the meconium and to facilitate its evacuation; lastly, I cleansed the wound and attached the edges of the intestinal opening to the skin by three points of interrupted suture, taking care to draw the intestine well forward.

The child was very weak; it had lost much blood and it was exhausted with pain, and I must confess I had little hope of it surviving, nor indeed did any of the spectators expect it to live.

I advised that it should be suckled and that its linen should be frequently changed.

From day to day the condition of the child improved; the sutures were detached on the fourth day; the agglutination of the edges of the intestine was then complete, and the opening afforded an easy exit to faecal matter.

On the 10th day after the operation, on examining the abdomen which had diminished in volume, we observed in the left iliac cavity, a swelling or tumor about three inches from the artificial anus. We thought that this sort of sac was formed by the end of the large intestine which terminated at this point, instead of descending into the pelvis.

On the 14th or the 15th day the artificial anus, by the tendency which it always had to contraction, was almost completely obliterated, and the child evacuated faeces with difficulty. It was very restless. I promptly dilated the opening, and I recommended in future, the daily introduction of wax bongies to keep the opening sufficiently large. In spite of my recommendation, the artificial anus contracted to such a degree, that on the 8th of March, I was obliged to force an opening with sounds and dilute by injections the faecal matter which had accumulated. Afterwards the child was very sick. Seeking to account for the obstacle which had formed a second time to obstruct the passage of faecal matter, I perceived that the wax bougie hitherto used had become too short, and that it dilated only one half of the passage; the other half had contracted on itself and only afforded vent to the more liquid portion of the faeces.

After this dilatation was kept up by the introduction of sounds the whole length of the artificial anus, and from time to time with a sponge prepared with pack thread, and no further accident occurred.

The description of this case, which I do not read in full, in order to spare the valuable time of the Academy, proves a complete success attained by the establishment of an artificial anus in the left lumbar colon, without opening the peritonaeum, of a new born child.

In this child the normal anus was well formed, but it did not communicate with that portion of the rectum containing the meconium, and in spite of the attempts made to ascertain the presence of this intestine above the closure, I could not recognise it at all. I was therefore forced to make an anus in the lumbar region.

I would remark that the life of the child was twice endangered by contraction of the lumbar anus. It is therefore in-

dispensable in this and all similar cases, to keep up this artificial passage with bougies of wax or gum elastic.

It is probable that the intestine terminates in the left iliac cavity above the pelvis ; for when the child cries or makes unusual effort there is seen an evident tumor in that region. Is this disposition favorable to the plan of operation proposed by M. Klewitz of Colberg ? This operation would consist of the repression towards the perinaeum, through the artificial anus of the lumbar region, of the terminal cul-de-sac of the large intestine, and the establishing an anus in the region of the perinaeum or coccyx, in order to suppress that of the lumbar region. I do not think such an operation practicable, for it would expose the life of the child to the new changes of a serious operation.

MM. Breschet, Magendie, and Larrey, who have seen the child, have testified that it is strong and well developed.

To-day it is more than a year old ; its health is as good as its infirmity will allow.

Its life seems certain so long as the artificial opening is kept well-dilated and sufficiently open, and in fine, so long as the retention of the faeces is avoided.

Let us consider, however, whether some new operation might not be attempted to restore the normal passage, as M. Hippolite Larrey has proposed, or to establish an artificial anus in the tumor as proposed by Baron Larrey.

Without discussing the possibility of executing these two propositions or the advantages they might secure, I think it more prudent to attempt nothing, in order not to compromise the life of the child. We have only to prevent the too great development of the tumor, and especially the contraction of the artificial anus.

In conclusion, this instance is remarkable in two respects, the difficulty of the operation, and the difficulty of keeping the artificial opening dilated.

From these observations, let us see what is to be done, and what is to be avoided in such cases. First, in a similar or analogous case, I would do what I did *below*, or rather, after having introduced a sound or the little finger, if I did not find a distinct fluctuation, indicating the upper end of the intestine, I would dilate the inferior end with a prepared sponge, to give time to the meconium to distend the end of the large intestine the better to explore it, and if the simple exploration, without rent, discovered nothing, I would immediately have recourse to the operation in the left lumbar region.

But if I found the rectum distended with meconium, as most frequently happens, instead of perforating the obstruc-

tion as is commonly done, I would make an incision on the side of the coccyx, behind, and I would bring down the rectum to the skin and fix it there by several points of suture, after opening it, in order to make an artificial anus in this region, just as we do in the abdomen.

Ordinarily surgeons content themselves with making a puncture with the trocar, and then enlarging the opening; but the child almost always dies. Almost every one that I have seen operated on, or that I have heard reported, have the same result. Death occurs in these cases, in consequence of an effusion of faecal matter in the cellular tissue of the pelvis, and because it is very difficult to preserve proper dilatation of the artificial opening.

Second Case.—On Monday, May 24th, 1842, a child was brought to me, of the male sex, born on Saturday, 22d inst., at midnight. Since birth it had passed no meconium, and had vomited almost constantly. I examined the region of the coccyx and found the anus well formed; but on introducing my little finger, it was arrested at about one inch and a half in height, and I could find no fluctuation at the bottom of this cul-de-sac, indicating that the rectum distended by meconium, terminated above the obstruction. The abdomen was not much distended. The urine was clear and flowed from a very small opening situated beneath the gland; hypospadias therefore existed in this case as well as imperforate rectum.

Desirous of assuring myself in the most positive manner, that the extremity of the intestine did not terminate immediately above the closure of the rectum, which I could hardly reach with my little finger introduced by the anal opening, I proposed to place a prepared sponge in the anus, in order to facilitate future examination. Besides, the child was very strong and active, and I saw no inconvenience that could result from delaying the operation till the next day.

The next day, the 25th, the child was again brought to me. It had continued to vomit greenish matter, and the sweetened water which they had given it. The abdomen was much distended and elastic; the urine had continued to escape freely by the opening situated beneath the gland. It was now highly necessary to determine upon some course.

I renewed the examination made the day before, and came to the same conclusion, that is, that the end of the rectum did not terminate above the closure. It was impossible to perceive any fluctuation.

After conferring with those present, who had made the same examinations, I did not hesitate to propose an operation

in the left lumbar region in preference to that which I might have performed in the region of the coccyx; and upon a review of all the reasons I adduced in favor of my opinion, it was unanimously decided to open the colon in the left lumbar region and make no attempt in the region of the coccyx.

I then proceeded to that operation in presence of MM. Chalus, physician at St. Maur, who had received the child, Capuron, Baum of Dantzick, Eydoux, Genouville, Dupré Latour, Parnot, Marinier, Dufresse, Denouette, Porinet, L. Boyer, Filhos, Le Vaillant, &c., &c.

The child having been placed on its right side, the head supported on a cushion, I began by assuring myself of the position of the last rib, the crest of the ilium, and the mass of the sacro-lumbalis, and longissimus dorsi muscles; then I marked in ink the boundaries of the region in which I was to operate. Finally, I made a transverse incision, about two inches long, commencing with the common mass of the sacro-lumbalis and longissimus dorsi muscles. This incision promptly extended to the muscles, which I was obliged to cut crucially as well as the skin. Quite a large artery was checked by torsion. I dissected the layers of the transverse aponeurosis and reached the adipose tissue of the kidney. I dissected back this tissue, and caught sight of the kidney which was uncovered for a part of its extent both behind and above: I then saw beyond and above this organ, another one of a brown color, which seemed to be the intestine; having seized it with two tenacula, I incised it between the two instruments; but I found no cavity, it was a solid organ like the spleen, or the supra-renal capsule; it could not have been the spleen which I cut, since that organ is within the peritonæum, and the peritonæum had not been opened. I therefore concluded that I had to do with the supra-renal capsule, largely developed and projecting beyond the kidney. I then sought for the intestine below, pushing the kidney upward and backward, and soon after, having enlarged the muscular incisions, pushed aside the kidney, the supra-renal capsule and the anterior angle of the kidney, and having sponged the bottom of the wound carefully, I perceived a greenish organ: from its color, position, and form, and from the sensation of fluctuation perceptible to the touch of the finger, I thought, and so did some of my assistants, that it was the descending colon, distended with meconium. A drawing of the lumbar region which I had before me confirmed this opinion, showing me the exact relation of the parts.

Examining then with minute attention the intestine in question, I was almost sure it was the left lumbar colon with-

out the peritonænum. I then fixed two tenacula in the walls of the intestine, a short distance apart, and between the two instruments firmly held, I cut the intestinal tunics with the scissors; gas immediately escaped with a prolonged whiz and having a characteristic odor, and then meconium passed in a continuous jet. To the great satisfaction of all present the result of the operation was about to be attained. The child seemed relieved by the escape of gas and faecal matter; for it was remarked that it cried much less. After enlarging the opening of the intestine, I introduced a canula, which penetrated deeply in the direction of the sigmoid flexure of the colon: then to keep the incision open, I put on its edges three artery forceps. Lastly, after injecting several times with tepid water, to thin the meconium and favor its evacuation, I fixed the edges of the intestine to the anterior angle of the wound by five points of interrupted suture. By the easy evacuation of the meconium the abdomen had already diminished; the child cleaned and warmed by placing near the fire, was calm, and drank with avidity of sweetened water.

The next day I received a very satisfactory account of the child; the abdomen was soft, and insensible to pressure; it drinks readily and exhibits no signs of suffering. The meconium continues to flow freely by the artificial opening.

On the 27th of May, I visited the child in company with Doctor Chalus, physician at St. Maur. The abdomen had completely returned to its normal condition: the wound is open and of a pale color, the intestine is seen at its bottom; it is contracted, but it is so well fixed in place by a process of agglutination that the threads attached only to the skin can be removed: inflammation of the mouth which had given me some uneasiness, seems to diminish.

At the fall of the sutures, the kidney caused a hernia in the wound. The child died seven or eight days after the operation.

Autopsy made on the 2nd of June, 1842, at half past six in the morning, at Saint Maur, in presence of MM. Filhos and Chalus.

The abdomen is somewhat spotted, and the edges of the wound are a little greenish.

The left pleura contains one or two spoonfuls of sanguinalent and glutinous fluid. The lung on this side is hepatized for two-thirds of its extent below.

The stomach is distended with gas and fluids; it also contains greenish balls of curdled milk: the mucous coat appears healthy.

The cæcum is placed beneath the stomach; it continues with the transverse colon, without any well defined line of demarcation, after receiving as usual the end of the small intestine. The vermicular appendix is attached to the upper part of the transverse colon. In consequence of this disposition of the cæcum, there is no ascending colon, so that the right lumbar region is occupied by the small intestines only. On the left, the lumbar colon follows the transverse colon, and preserves its position and ordinary relations; but after a passage of about two inches it terminates in nearly a right angle; the ileum which comes next, continues almost transversely to the right, then returns to the left, thus describing an arch whose extremities are directed to the left lumbar iliac region. The two portions of the intestine forming the sigmoid flexure are joined and adherent for a large portion of their entire length. Finally, the inferior extremity of the arch continues with the rectum, which preserves all its normal relations, and which terminates at a very small distance from the closure which hindered the passage of faecal matter by the anus. We will add that the rectum is quite dilated from its commencement at the sigmoid flexure through the greater part of its extent, but that at a short distance from the closure which separates it from the anal portion, it assumes a conic form and occupies a very small space. This disposition sufficiently explains the want of fluctuation when examination was made during life by the introduction of the fore-finger as far as possible into the anus. In fact, the dilated portion of the rectum not reaching to the closing obstruction, only the conical extremity of the intestine could be touched, in which there existed no matter capable of affording a manifest fluctuation.

The closure which divides the rectum into two parts is quite thick and resisting, it is situated about two inches from the anus.

Adhesions exist between the skin and the portion of the left lumbar colon which had been opened. This portion of the intestine is entirely deprived of peritonæum. A well marked projection exists at the point where the continuity of the canal has been interrupted by the formation of the artificial anus.

The peritonæum contains neither serosity nor false membranes, indicating that it had been the seat of inflammation.

Third Case.—On the 26th of January, 1843, M. le docteur Berthier sent me a male infant, born the evening previous, and who had not passed meconium. The midwife discovered

imperforation, but convinced that the child could not live more than twenty-four or forty-eight hours longer, and that no operation could be performed, she had not thought of an attempt being made. She had, besides, advised the mother not to give it the breast, in order to avoid the secretion of milk, which, as she thought, must soon be useless. The child had urinated, and the penis and scrotum were well formed. On examination of the region of the anus, perinæum, and coccyx, the following appeared:—First, There was no anal opening. Second, The raphé continued from the scrotum to the sacrum, with no other interruption than a depression at the normal position of the anus, and a cicatrix adhering to the sacrum at the point of the inferior and posterior portion of that bone. Third, The space comprised between the coccyx, whose curve was quite small, and the pubis, was quite small. Fourth, There was no kind of fluctuation in the regions indicated. Fifth, When the child cries, and makes efforts as if to void excrement, the fingers being applied to the anal region, a sort of contraction is perceived, probably indicating the presence of some fibres of the sphincter or levator ani.

Without doubt an operation was clearly indicated, and we were authorized to proceed to perform it at once; but, considering on the one hand the absence of fluctuation in the anal region, and on the other the condition of the child, which was strong and active, we thought best to wait for the morrow, in order to see if the lower part of the large intestine, more and more distended by meconium, would not cause protrusion of the anal region. We know, in fact, that in some cases, the efforts at expulsion, and the repletion of the upper portion of the imperforate intestine, have enabled us at the end of several days to perceive a fluctuation which it would have been impossible to detect at an earlier period, the meconium not being then accumulated in the last portion of the large intestine.

The next day the child was brought to us. Its condition was aggravated. It vomited and cried incessantly; its skin was of a violet hue, the abdomen much distended, and the hypogastrium, the penis, and the scrotum were already the seat of a serious infiltration which we had remarked in similar circumstances, and which with the violet color of the skin, must necessarily supervene as a consequence of the oppression of the venous circulation caused by the distension of the intestines.

A careful examination of the anal region, made by us, as well as by MM. Berthier Oliffe, brothers, Duponchel, L.

Boyer, Delarue, Duplan, Schuster, Grabowski, Leguillon, Silvestre Du Perron, Robert, Maingault, Alphonse Amussat, Le Vaillant, &c., gave no indication of fluctuation, and we consequently remained in the same state of uncertainty as on the day before. Nevertheless, as this absence of fluctuation was not an absolute indication that the large intestine terminated very high up the pelvis, and as it was possible that it might terminate in a cul-de-sac, or by contraction at an inch, or an inch and a half, more or less, from the anal region, it seemed that prudence and the rules of surgery required that, before making an anus in the left lumbar region, every possible effort should be made in the anal region to establish an anus in the normal position. I therefore made a deep incision with the bistoury on the raphé, going even beyond the coccyx. I then detached the point of the coccyx, in order to excise it, in case of necessity. I then cut in two the fibrous bands as they appeared. But not feeling any fluctuation indicating the presence of the inferior end of the rectum, I deliberated with the assistants, and it was decided that since the incision already made to a considerable depth had discovered only fibrous tissue, it was not probable that we could reach the intestine that way, and that besides we ought not to continue an operation which gave no chance of success, and which, by its continuance, took away those belonging to the operation in the lumbar region, to which we must have recourse. I therefore decided, but with regret, to abandon this operation, and make an artificial anus in the left lumbar region.

The child was placed on its abdomen, and an assistant was charged to place one hand on the abdomen, in order to compress the intestines and force the colon into the lumbar region. This being done, the child was placed a little inclined to the right side, and they traced with ink the boundaries of the region in which the colon might be met without the peritoneum. A transverse incision disclosed adipose tissue, which was clipped and removed with the scissors; then the muscles uncovered were incised in their turn. The wound was kept well distended by M. Boyer, by the aid of crochets devised for separating the eyelids in the operation for strabismus. At the time of the operation, I consulted a plate representing the lumbar region, to assure myself that I was really proceeding in the direction of the intestine; I then incised the quadrilateral lumbar space, hoping to discover the kidney which would have served me for a guide. A body presented itself, glossy and of a violet hue, whose position and appearance made us suspect it was the intestine. The touch gave a

sensation of fluctuation and elasticity analogous to that which would be furnished by the intestine. In the doubt as to identity, the body was seized with two tenacula and slightly incised. I then recognized that it was the kidney. Directing my search farther on, and guided by this organ, I soon discovered the colon, recognized by its green color and elasticity. I fixed into its walls two tenacula a short distance apart, and incised the intestine with scissors between the two. Immediately gas escaped with a whistling sound, and then thick, black, and glutinous meconium passed. Two artery forceps fixed to the edges of the opening just made, permitted the meconium to pass freely, and to facilitate the evacuation, a canula was introduced to break up the meconium; at the same time light pressure was made on the child's abdomen. Finally, a large amount of meconium having passed, the intestine was fixed to the anterior angle of the skin by three points of interrupted suture. Another suture was made to unite the posterior angle of the wound to recover the kidney.

The child was then cleansed, and warmed, and carried home by one of the neighbors of the mother, a woman whose devoted faithfulness never swerved for a moment, and whose admirable conduct was contrasted in a striking manner with the inhumanity and ignorance of the midwife who attended the delivery.

The next day after the operation, the child was in good condition; it sucked with extreme avidity; the meconium and faeces passed readily. It urinated well.

On the succeeding day, a considerable prolapsus of the intestinal mucous membrane was seen through the artificial opening. But the prolapsus disappeared by a light pressure of the fingers, and did not hinder the exit of faecal matter.

To prevent the increase of this prolapsus, compresses were applied, kept in place with a bandage, which was recommended to be continued, taking it off only from time to time to afford exit to faecal matter.

On the fourth day, the sutures came away, even that which had been made in the posterior part. The prolapsus tends rather to diminish than to increase. The condition of the child is very satisfactory; it sucks with avidity, and there is every reason to hope that it will survive." (*Troisième Mémoire, &c.; also, L'Examinateur Médical de Paris, Année 1843, tome III., No. XVIII., pp. 229, 230, 231, 232, 233.*)

CASE CCLXXXVII.—M. Baudelocque reports the case of an infant, two days old, which had a natural anus, but upon minute examination he found the rectum completely ob-

structed about one inch above the anus. He attempted to open the communication by incising the membrane terminating the rectal cul-de-sac, as he had successfully done on a previous occasion, in, as he thought, a precisely similar case, but completely failed to reach the meconium. He then determined to practice lumbar enterotomy, according to the process of Callisen, modified by Amussat.

The child having been placed on its side, Baudelocque made a transverse incision, an inch in length, in the lumbar region. The aponeurosis of the external obliquus was divided, as were also some fibres of the quadratus lumborum, and the colon, which was found in a layer of fat, was then opened. A considerable quantity of meconium escaped, and the intestine was afterwards fixed by three sutures. On the fourth day a little erysipelas-like redness appeared around the wound, and the child became feverish. Leeches were applied, the nurse was changed and the child at once recovered. On the eighth day after the operation it was doing well. (*Mémoire de l'Académie Royale des Sciences, Paris, Août et Octobre, 1844. Also, London Lancet, Vol. I., February, 1845.*)

S E C T I O N X I.

APPRECIATION.

FROM a careful comparison of the two operative procedures of Littré and Callisen, together with their several modifications, I am of opinion that the preference should be given to the former, when infants are the subjects. M. Banden's thinks that, from the mere fact of the great intestine being less developed in the infant than in the adult, the cellular space in the former must be so small as to occasion great difficulty in reaching it without wounding the peritoneum, and that consequently Callisen's operation should be limited to the adult. (*Opus Citatum. p. 127.*)

M. Amussat himself admits that his modification of Callisen's operation would not be uniformly practicable on the infant. "I am," says he, "more and more satisfied that the

anatomical dispositions favorable to the operation, are the rule; the reverse, the exception." (*L'Examinateur Médical de Paris. Année 1843. Tome III., p. 235.*)

The operative execution of Littré's process is certainly much more simple and easy than Callisen's; even M. Amussat himself acknowledges that his proceeding is greatly more complicated than that of M. Littré. (*Opus Citatum.*)

It is true that in Littré's proceeding the peritonæum is opened, but this is by no means so grave an affair as is generally supposed, taking into consideration the success that usually attends hernial operations. The operation even of Callisen by no means insures us against the occurrence of peritonæal inflammation.

The position, too, of the artificial anus, in my opinion, is more convenient and more favorable in the groin than in the loin. It being placed nearer the extremity of the great intestine, it is more analogous to the natural anus, and affords a better opportunity to the excrementitious matters of being more completely deprived of all their nutritive properties before reaching it.

To repeat, I believe finally that, without absolutely rejecting either Callisen's or Amussat's method, it would generally be better to have recourse to Littré's operation in the cases of children.

M. Malgaigne is, however, of a contrary opinion. He says: "The method of Callisen, avoiding the opening of the peritonæum, presents one real danger less than that of Littré, and should be adopted at least as a general method. It has been deemed as inconvenient to have the anus at the side, and even a little behind; and had we to consider nothing but the sexual relations even, I should regard it as a great advantage not to have the artificial anus before." (*Opus Citatum, p. 449.*)

SECTION XII.

THE PROCEEDING OF MARTIN.

M. PARIS, in his inaugural thesis, attributes to M. Dubois the original idea of the method which M. Martin carried into practice on the dead body, which he afterwards recommended, and which now bears his name. This operation consists in opening the sigmoid flexure of the colon in the left iliac region, according to the process of M. Littré, being particular in making the intestinal incision longitudinal and as short as possible. Through this opening an exploring instrument—a sound or a trocar—either with a proper curve or flexible, should be conducted from above downwards, towards the perinæum and natural situation of the anus, in order, if possible, to render it salient, and thus furnish the operator with a certain mark by which to guide him in making his incisions in the perinæum; or, even to push the instrument entirely through the parts which separate it from the perinæum, and thus indicate the route of the bistoury. In either case the incisions are to be made down to the cul-de-sac by the ordinary method of forming an artificial anus in the perineal region, having the exploring instrument as the unerring guide to the termination of the intestine. The wound in the abdomen is to be healed in the usual manner.

This *double operation* of M. Martin is somewhat similar to that which M. Littré proposed. It, however, exists only in theory, as no surgeon, as far as my knowledge extends, has yet had the courage and the rashness to execute it on the living subject.

M. Velpeau recommends a *sonde-à-dard* to be introduced, if possible, through the pelvis, the arrow of which, pushed as far as the outside of, and in the direction of the anus, would

become the conductor of the bistoury during the remainder of the operation. He considers it a much more suitable instrument than either the large flexible canula, or the enormous trocar of M. Martin. (*Nouveaux Eléments de Médecine Opératoire. Tome III., p. 985. Paris, 1832.*)

M. Velpeau thinks that it would be improper to proscribe, or to reject this operation indiscriminately, as cases might occur in which it might be found valuable. (*Opus Citatum.*)

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